

## VPA PERMIT PROGRAM FACT SHEET

This document gives pertinent information concerning the VPA permit listed below. This permit is for the land application of an industrial effluent (wash water for potato produce), as well as land disposal of culls (damaged potatoes).

## 1. Treatment Works/

Facility Name and Address

Kuzzens-Mappsville North Packing Plant  
12201 Lankford Highway  
Mappsville, VA 23301  
County: Accomack

Legal Name of Owner and Address

Kuzzens, Inc.  
3769 Grapeland Circle  
Exmore, VA 23550

2. VPA Permit No.: VPA01082

3. SIC Code(s): 0723

4. Facility Contact

Name: Mr. Richard Davis

Title: Farm Manager

Telephone no.: 757-442-4961

E-Mail Address: richard.davis@lipmanproduce.com

Owner Contact:

Gerard B. O'Dell, Jr., Chief Farming Officer

P. O. Box 3088

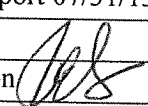
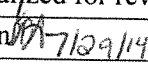
Immokalee, FL 34142

239-657-4421

5. Permit Application Information:

Application submitted by:	Mr. Gerard B. O'Dell, Jr., Chief Farming Officer
Address (if different than owner's address):	
Application receipt date:	02/26/14
Additional information requested:	09/08/14; 03/05/14
Additional information received:	10/29/14; 04/30/14; revised applic 03/25/14 and 06/23/14
Application complete date	10/29/14 (revised application/ LAND OWNER AGREEMENT FORMS

6. Permit Processing Information:

DEQ Regional Office:	Tidewater Regional Office
Site Inspection performed by:	Steve Thomas
Date of site inspection :	07/31/13 (report 07/31/13)
Date of public meeting for permit application*:	n/a
Permit drafted by:	R. E. Smithson 
Date permit drafted:	06/30 /14; finalized for review 07/10/14 & 11/20/14
Draft permit reviewed by:	Deanna Austin 
Date draft permit reviewed:	7/29/14, 12/2/14, 1/6/15
Dates of draft permit public comment period	From:
	To:

\* A public meeting is only required for certain applications to authorize land application of biosolids,

7. Permit Characterization

Permit Action	Facility	Permit Type
<input checked="" type="checkbox"/> Issuance	<input checked="" type="checkbox"/> Existing facility	<input type="checkbox"/> Biosolids distribution, marketing, storage, and land application
<input type="checkbox"/> Reissuance	<input type="checkbox"/> Proposed facility	<input type="checkbox"/> Frequent
<input type="checkbox"/> Revocation and reissuance	<input type="checkbox"/> Treatment Works	<input type="checkbox"/> Infrequent
<input type="checkbox"/> Owner modification	Type	<input type="checkbox"/> Land application/storage of animal waste
<input type="checkbox"/> Board initiated modification	<input type="checkbox"/> Municipal	<input type="checkbox"/> Land treatment of wastewater
<input type="checkbox"/> Interim authorization	<input checked="" type="checkbox"/> Industrial	<input checked="" type="checkbox"/> Industrial
<input type="checkbox"/> Enforcement action	Ownership	<input type="checkbox"/> Municipal
	<input type="checkbox"/> Public	<input checked="" type="checkbox"/> Land application of industrial effluent produce (potato) wash water
	<input checked="" type="checkbox"/> Private	<input type="checkbox"/> Land application of water plant residuals
	<input type="checkbox"/> Federal	<input type="checkbox"/> Land application of septage
	<input type="checkbox"/> State	<input type="checkbox"/> Water reclamation and reuse
	<input type="checkbox"/> Animal feeding operation/poultry waste management	<input type="checkbox"/> Pump and haul*
		<input checked="" type="checkbox"/> Other: LAND APPLICATION OF CULLS DISCED INTO FIELD
	<input type="checkbox"/> Reclamation system or satellite reclamation system	<input type="checkbox"/> Other: _____
	<input type="checkbox"/> Reclaimed water distribution system	
	<input type="checkbox"/> Other	

\* Pump and haul of wastewater other than sewage. Pump and haul of sewage is regulated by the Virginia Department of Health in accordance with the Sewage Handling and Disposal Regulations (12VAC5-610).

8. Annual permit maintenance fee : VPA Industrial Wastewater Operation/Land Application of 10 or More Inches Per Year – billed annually

9. Licensed Operator Requirements: none

10. Reliability Class: n/a

11. Pollution Management Activity Description. Potatoes are harvested and trucked to the packing facility in farm trucks. Produce is washed in a flume filled with groundwater from an onsite well.. Washwater generated is 1,500 GPD (avg), received by one of two 6,000 gallon storage tanks. Upon completion of each work day, a max. of 2,500 gal. is transferred to a 3,600 gal. capacity spray truck to be carried to a nearby 3.39 acre spray irrigation site planted in tall fescue. The irrigation site is divided into 7 travel lanes that will be

used by a truck with a mounted spray irrigation rack. Each day's spray event will follow one of the travel lanes and apply at a rate to cover no more than 0.2 inches depth. Each work day will utilize the next spray travel lane until the entire 3.39 acre field is covered in 7 spray events (7 days). This provides approx. 1 week rest per travel lane. Application rates are adjusted by speed of the spray trucks (over application is prevented by visual inspection & walking the travel lane). If the spray field is saturated, no spraying will occur. The produce washing operation is seasonal: approximately 50 days starting in mid to late June and ending in mid August of each year This would amount to an annual wastewater production of approx. 75,000 gallons.

Unmarketable product (culls) are transported via truck to nearby farm sites consisting of approx. 135 total available acres with predominantly Bojac & Munden soils.. Culls are disced in typically within 48 hours (or ASAP) as a soil amendment . Reference the NMP for the crops that will be grown on the cull disposal fields (see attachment A: Bull & Whaples Farms) and the agronomic practices used (appendix C of application).

12. Location Description. **Bloxom Topo #142D: Maps included in application: See attachment 2 in fact sheet.**

13. Bases for Limits and Monitoring Requirements and Special Conditions. *provide the basis from law, regulation, policy, guidance or best professional judgment used to establish the monitoring frequency, sample type and any limitations required for all parameters listed in Part I.A of the permit. Where a nutrient management plan is required for the pollutant management activity authorized by the permit, include in Table 1 references to applicable portions of the Nutrient Management Plan that provide the basis for monitoring requirements and limitations.*

A. Part I.A Limits and Monitoring Requirements. Reference TABLE I: ***Basis for Monitoring Requirements - ATTACHMENT 4***

Note: The pesticide Fipronil, used on the potato plants when growing, was present in washwater sample results - 0.76 ug/l at a similar Florida potato operation. After consideration, it was not singled out for monitoring outside of the required 608 pesticide scan for the following reasons: 1) a 150 ft. vegetated buffer is present to the nearest water course (intermittent flowing drainageway); 2) it is applied only during planting and should be less of a concern after harvest. Also, it is not applied at a rate or during conditions that would allow runoff and 3) .it was a relatively low concentration in the washwater and degrades rapidly in water/sun (half life of 4-12 hrs)

B. Part I.B [*Insert if applicable:* and C] Special Conditions. *Provide for each permit special condition in Part I.B and, if applicable, I.C of the permit a brief description of the condition followed by the basis for that condition. Provide a more detailed basis, and as necessary, documentation for any site-specific special conditions or changes made to standard special conditions from the VPA Permit Manual.*

***Reference ATTACHMENT 3***

14. Compliance Schedules. [*Note: In Table III, provide a description of any Compliance Schedules that may apply to this permit. Compliance schedules should include any additional information submittals, BMP plans, construction dates and special reporting requirements that may be defined in the special conditions.*]

\ N/A

15. Changes to the Permit. [*Note: Identify any changes in the permit from the previously issued or modified permit, whichever is more recent. Refer to communications with the applicant, VDH, DCR, and any other agency where their comments resulted in changes to the permit. Include any changes associated with the special conditions or reporting.*] **Reference ATTACHMENT 5**

16. Public Notice Information per 9 VAC 25-32-120.B: All pertinent information regarding the draft permit and application is on file at the DEQ-**Tidewater** Regional Office, and may be reviewed and copied by contacting

*Robert Smithson at 5636 Southern Blvd., Va. Beach, Va. 23462 or by phone 757-518-2106 or e-mail address: robert.smithsonjr@deq.virginia.gov.*

DEQ accepts comments by e-mail, fax or postal mail. All comments must be in writing and be received by DEQ during the comment period. Written comments must include: (1) the names, mailing addresses and telephone numbers of the person commenting and of all people represented by the citizen; (2) if a public hearing is requested, the reason for holding a hearing, including associated concern; and (3) a brief, informal statement regarding the extent of the interest of the person commenting, including how the operation of the facility or activity affects the citizen. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the proposed permit. The public may review the draft permit and application at the DEQ – TRO office {by appointment}.

17. NEAREST ADJACENT RECEIVING WATERS CLASSIFICATION:

Potential Receiving Stream or other  
Water Body: Unnamed Tributary to Assawoman Creek  
Basin: Chesapeake Bay, Atlantic & Small Coastal  
Subbasin: n/a  
Section: 1a  
Class: III  
Special Standard(s): none  
7/Day-10/Year Low Flow: 0 (dry ditch)  
Approximate distance from site to nearby waterway: approx. 50 feet

18. Attachments. List any attachments associated with this permit. [*Note: Attachments to be included in the final permit may be used as the attachments to the Fact Sheet*].

Attachment <u>1</u>	Basis for Monitoring Req: Wastewater, GW & Soils(Table I)
Attachment <u>2</u>	Maps/Fields
Attachment <u>3</u>	Special Conditions and Rationale
Attachment <u>4</u>	Monitoring Basis
Attachment <u>5</u>	Permit Processing Change Sheets (Tables IIIa and IIIb)
Attachment <u>6</u>	Site Maps/Water Balance
Attachment <u>7</u>	Chronology Sheet
Attachment <u>8</u>	GW monitoring, well locations, soils map & productivity
Attachment <u>9</u>	Correspondence, Inspection Report
Attachment <u>A</u>	Approved Land Application Sites
Attachment <u>B</u>	Application Checklist
Attachment <u>C</u>	Estimated Yields and Recommended PAN Rates
Attachment <u>D</u>	Reporting Forms



## ATTACHMENT 1

### BASIS FOR LIMITING & MONITORING REQUIRMENTS

#### TABLE I

TABLE I  
Basis for Limits and Monitoring Requirements in Part I.A of Permit

Monitoring Type: Industrial wastewater/effluent

Monitoring Location or Point of Compliance: Storage tank prior to spray application  
Limits and Monitoring Requirements:

PARAMETER	BASIS FOR LIMITS AND MONITORING REQUIREMENTS**	LIMITS			MONITORING REQUIREMENTS [a]	
		Minimum	Average	Maximum	Frequency	Sample Type
Flow (MGD)	5	N/A	N/L	N/L	1/Day	Measured
Total Volume Applied (MG)	5	N/A	N/A	N/L	Monthly [a]	Calculated
Application Rate (in/hr) [b]	5	N/A	N/A	0.25	1/ Application	Measured
Application Rate (in/day) [b]	5	N/A	N/A	1.0	1/ Application Day	Measured
Application Rate (in/wk) [b]	5	N/A	N/A	2.0	1/Week	Measured
pH (S.U.)	5	6.0	N/A	9.0	2/Month	Grab
Chlorides (mg/l)	5,6	N/A	N/L	N/L	2/Month	Grab
TKN (mg/l) & (lbs/acre)	5,6	N/A	N/L	N/L	2/Month	Grab/Calculated
Ammonia-N (mg/l) & (lbs/acre)	5,6	N/A	N/L	N/L	2/Month	Grab/Calculated
Nitrate-N (mg/l) & (lbs/acre)	5,6	N/A	N/L	N/L	2/Month	Grab/Calculated
Available Phosphorus (mg/l) & (lbs/acre)	5,6	N/A	N/L	N/L	2/Month	Grab/Calculated

NL = No Limitation, this is a monitoring requirement only  
NA = Not Applicable

Monthly spray irrigation/land application monitoring reports (DMRs) for the **off season of November through April** are not required to be submitted to the regional office at the frequency required by the permit if there has been no activity at the facility or the fields during one of those months. Other requirements such as annual reports are due in accordance with deadlines stated in the permit.

\*\* Statutory, regulatory or other bases for limits and monitoring requirements:

1. State Water Control Law
2. 9VAC25-32-10 et seq. (VPA Permit Regulation) & VPA Manual
3. 9 VAC 25-790 (Sewage Collection and Treatment Regulations)
4. 9 VAC 25-280-10 et seq. (Groundwater Standards)
5. Agency Guidance: **Guidance Memo 01-2005 Spray Irrigation and Reuse of Wastewater and/or** **Guidance Memo 93-023 VPA Permits/Food Processing**
6. Best Professional Judgment

[a] See Part I.C.1.

[b] See Part I.C.2 (maximums) and Part I.C.10.

TABLE I  
Basis for Limits and Monitoring Requirements in Part I.A of Permit

**Monitoring Type: Industrial wastewater/effluent**

**Monitoring Location or Point of Compliance:** Storage tank prior to spray application

**Limits and Monitoring Requirements:**

PARAMETER	BASIS FOR LIMITS AND MONITORING REQUIREMENTS**	LIMITS			MONITORING REQUIREMENTS [a]	
		Minimum	Average	Maximum	Frequency	Sample Type
Available Potassium (mg/l) & (lbs/acre)	5,6.	N/A	N/L	N/L	2/Month	Grab/Calculated
Total Dissolved Solids (TDS) (mg/l)	5,6	N/A	N/L	N/L	2/Month	Grab
Plant Available Nitrogen (PAN) (lbs/acre)	5,6	N/A	N/L	[c]	1/Month [d]	Calculated
Plant Available Nitrogen ( lbs/acre/yr) [c]	5,6	N/A	N/A	[c]	1/Year [d]	Calculated
Dissolved Copper (ug/l)	4,5	N/A	N/L	N/L	2/Month	Grab
Dissolved Zinc (ug/l)	4,5	N/A	N/L	N/L	2/Month	Grab
Pesticide Scan (EPA Method 608) (ug/l) (e)	4,5,6	N/A	N/A	N/L	1/Year	Grab

NL = No Limitation, this is a monitoring requirement only  
NA = Not Applicable

Monthly spray irrigation/land application monitoring reports (DMRs) for the off season of November through April are not required to be submitted to the regional office at the frequency required by the permit if there has been no activity at the facility or the fields during one of those months. Other requirements such as annual reports are due in accordance with deadlines stated in the permit.

\*\* Statutory, regulatory or other bases for limits and monitoring requirements:

- [a] See Part I.C.1.
- [b] See Part I.C.2. (maximums) and Part I.C.10
- [c] Reference maximum PAN limitations in Attachment C for fescue pasture-productivity level 3
- [d] See Part I.C.9 and Part I.C.10. -- nitrogen supplementation and PAN loading calculations, respectively
- [e] See Part. I. C. 12
1. State Water Control Law
2. 9VAC25-32-10 et seq. (VPA Permit Regulation) & VPA Manual
3. 9 VAC 25-790 (Sewage Collection and Treatment Regulations)
4. 9 VAC 25-280-10 et seq. (Groundwater Standards) and/or Guidance Memo 98-2010
5. Agency Guidance: Guidance Memo 01-2005 Spray Irrigation and Reuse of Wastewater and/or Guidance Memo 93-023 VPA Permits/Food Processing
6. Best Professional Judgment

TABLE I

Basis for Limits and Monitoring Requirements in Part I.A of Permit

Monitoring Type: **Groundwater**

Monitoring Location or Point of Compliance: Monitoring Wells 1 and 2

Limits and Monitoring Requirements:

PARAMETER	BASIS FOR LIMITS AND MONITORING REQUIREMENTS**	LIMITS			MONITORING REQUIREMENTS	
		Minimum	Average	Maximum	Frequency	Sample Type
Static Water Level (elevation in 0.01 ft.)	2,4,5	N/A	N/A	N/L	1/Year	Measured
pH (Std. Units)	2,4,5	N/A	N/A	N/L	1/Year	Grab
Nitrate-N (mg/l)	2,4,5	N/A	N/A	N/L	1/Year	Grab
Total Dissolved Solids (TDS) (mg/l)	2,4,5	N/A	N/A	N/L	1/Year	Grab
Chlorides (mg/l)	2,4,5	N/A	N/A	N/L	1/Year	Grab
Total Organic Carbon (mg/l)	2,4,5	N/A	N/A	N/L	1/Year	Grab
Total Recoverable Copper (ug/l)	2,4,5	N/A	N/A	N/L	1/Year	Grab
Total Recoverable Zinc (ug/l)	2,4,5	N/A	N/A	N/L	1/Year	Grab
Pesticide Scan (EPA Method 608) (ug/l) [a]	2,4,5	N/A	N/A	N/L	1/4 Years	Grab

\*\* Statutory, regulatory or other bases for limits and monitoring requirements:

NL = No Limitation, this is a monitoring requirement only  
NA = Not Applicable

[a] See Part I.C.12. Scan must utilize EPA Method 608 with electron capture detector and a nitrogen phosphorus detector.

1. State Water Control Law
2. 9VAC25-32-10 et seq. (VPA Permit Regulation) & VPA Manual
3. 9 VAC 25-790 (Sewage Collection and Treatment Regulations)
4. 9 VAC 25-280-10 et seq. (Groundwater Standards) and/or Guidance Memo 98-2010

Agency Guidance: Guidance Memo 01-2005 Spray Irrigation and Reuse of Wastewater and/or Guidance Memo 93-023 VPA Permits/Food Processing

1/Year = In accordance with the following schedule: sample wells in August; report due January 10<sup>th</sup> with annual summary report

1/4 Years = Sample for pesticides scan in August 2015, August 2019 and August 2023; reports are due January 10<sup>th</sup> following each sampling event.

TABLE I

Basis for Limits and Monitoring Requirements in Part I.A of Permit

Monitoring Type: Soils

Monitoring Location or Point of Compliance: Wastewater application site – refer to attachment A for location(s)

Limits and Monitoring Requirements:

PARAMETER	BASIS FOR LIMITS AND MONITORING REQUIREMENTS**	LIMITS			MONITORING REQUIREMENTS	
		Minimum	Average	Maximum	Frequency	Sample Type
Soil pH (SU)	2,5	N/A	N/L	6.5 [a]	1/Year	Composite
Available Phosphorus (mg/kg)	2,5,6	N/A	N/A	N/L	1/Year	Composite
Exchangeable Potassium (mg/kg)	2,5,6	N/L	N/A	N/L	1/Year	Composite
Total Nitrogen (mg/kg)	2,5,6	N/L	N/A	N/L	1/Year	Composite

N/A = Not Applicable

NL = No Limitation, this is a monitoring requirement only

1/Year = Sampling shall be accomplished in August with results due with the annual report January 10<sup>th</sup>.

[a] ] See Part I.C.7.

1. Composite = samples shall be representative of the soil types delineated by the SCS Soil Survey (or the equivalent). A representative composite sample shall be comprised of at least 10 cores. Samples shall be taken at 4-6 inches soil depth for each application site. Sampling protocol shall be outlined accordingly in the O & M Manual.

2. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): See Attachment A

\*\* Statutory, regulatory or other bases for limits and monitoring requirements:

1. State Water Control Law
2. 9VAC25-32-10 et seq. (VPA Permit Regulation) & VPA Manual
3. 9 VAC 25-790 (Sewage Collection and Treatment Regulations)
4. 9 VAC 25-280-10 et seq. (Groundwater Standards)
5. Agency Guidance: Guidance Memo 01-2005 Spray Irrigation and Reuse of Wastewater and Guidance Memo 93-023 VPA Permits/Food Processing
6. Best Professional Judgment: VPI & SU Guidance (attachments 4 and 9)

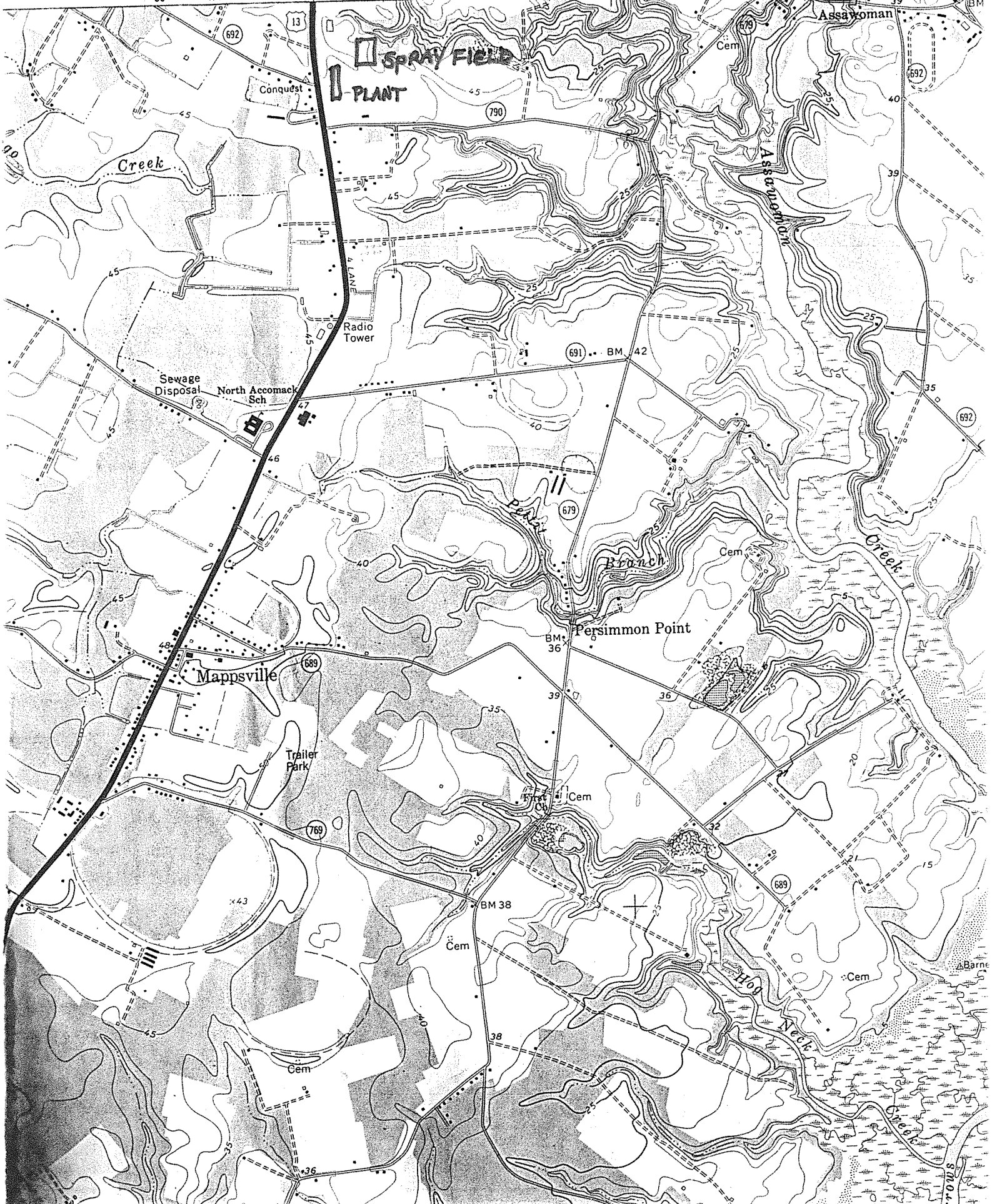
## ATTACHMENT 2

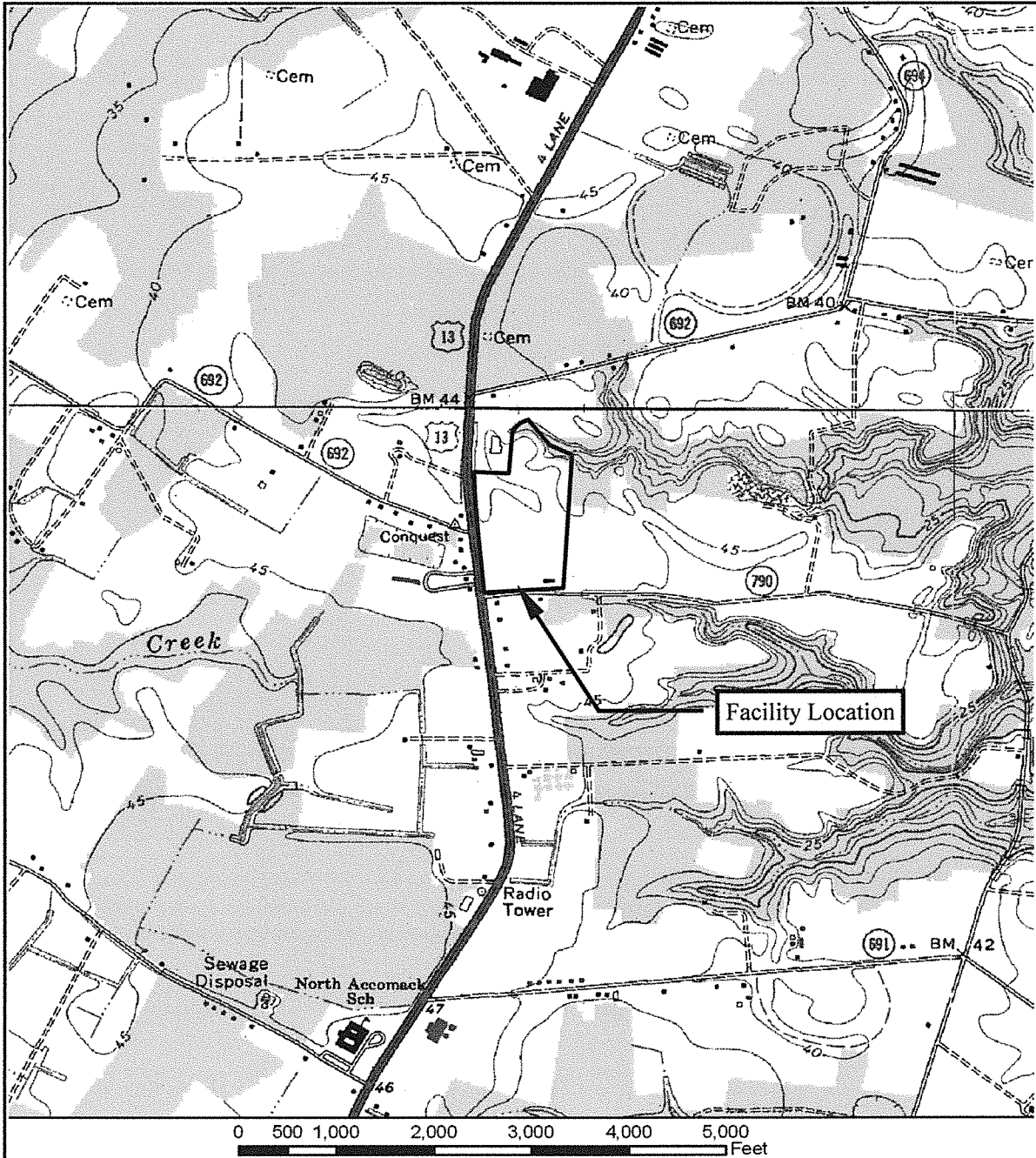
### MAPS/FIELDS

COMMONWEALTH OF VIRGINIA  
DIVISION OF MINERAL RESOURCES

KUZZENS - MAPPSVILLE N. TACKING  
BLOKOM TOPO 142D PLANT

450 5859 I NE (HALLWOOD) SALISBURY, MD. 42 MI. TEMPERANCEVILLE 1.4 MI. 452 32'30" 453 ATLANTIC 2 MI. 679





Source: Bloxom and Hallwood, Virginia USGS Quadrangle Topographic Maps



**FIGURE 1. USGS TOPOGRAPHIC  
VICINITY MAP**

**KUZZENS- MAPPSVILLE NORTH PACKING PLANT  
MAPPSVILLE, VIRGINIA**

MSA JOB #	DATE:	SCALE	By:
08719AO	1/8/2014	Graphic	MME

**MSA, P.C.**



5033 Rouse Drive, Virginia Beach, VA. 23462  
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Environmental Sciences + Planning + Surveying  
Engineering + Landscape Architecture



CAMPBELL FARMS - VIRGINIA LLP  
12201 LANKFORD HIGHWAY  
HALLWOOD, VA 23359

CHESSER ROAD

SPRAY FIELD

SPRAY

4.2

LANKFORD HIGHWAY  
ROUTE 13

HALLWOOD ROAD

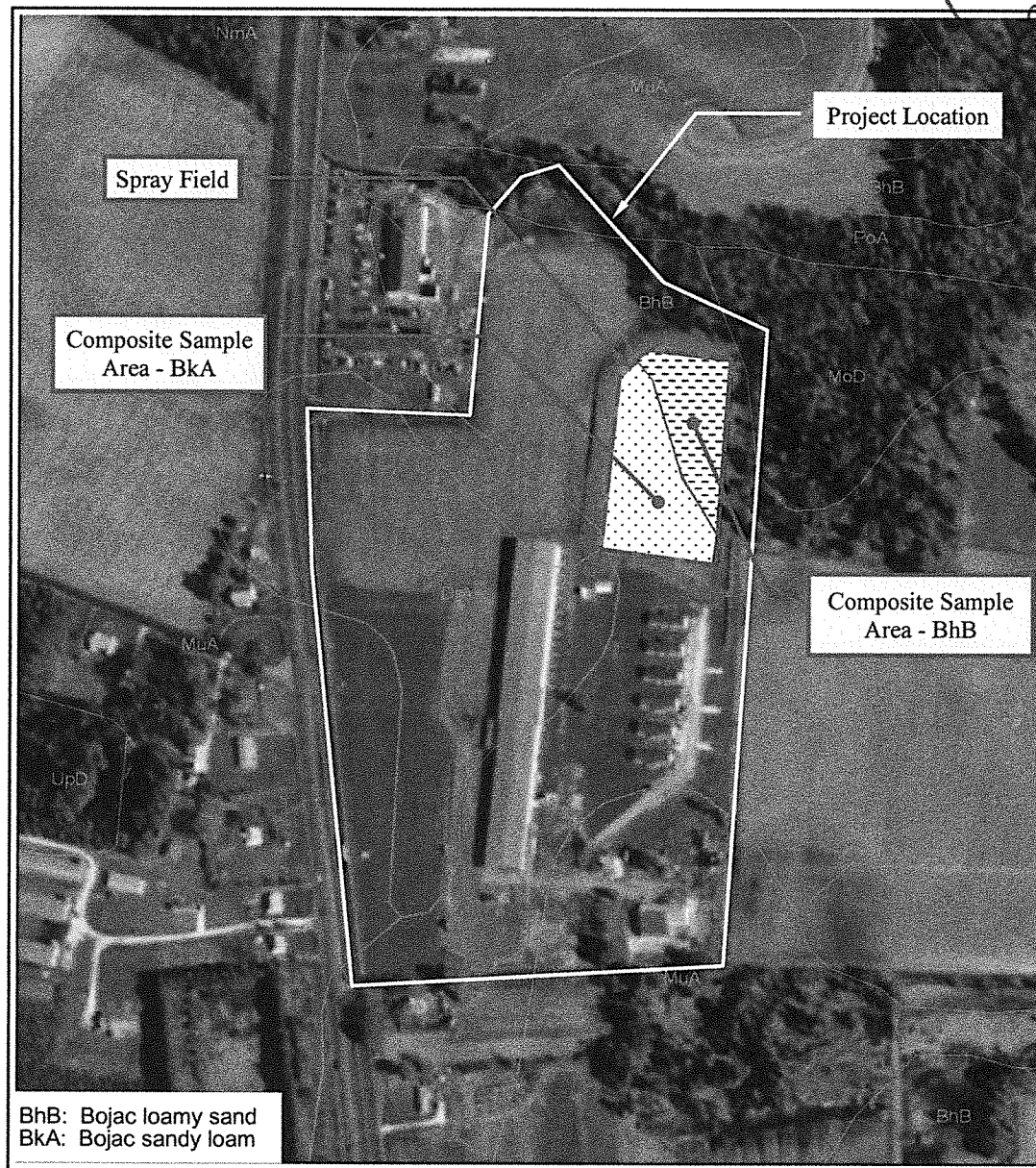
THORNTON ROAD

 **KEEN**  
CONSULTING

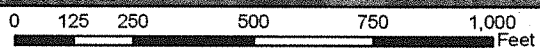
ACCOMACK COUNTY  
WATERSHED AO08




RECEIVED - DEQ  
JUN 23 2014  
Tidewater Regional Office



BhB: Bojac loamy sand  
BkA: Bojac sandy loam



Note: Entire subject property is shown as in Flood Zone X on FEMA Flood Map 51001C0475F.

<b>FIGURE 5. WASTEWATER SPRAY FIELD SOIL TYPES &amp; SAMPLE LOCATIONS</b>	<b>MSA JOB #</b> 08719AO	<b>DATE:</b> 4/7/2014	<b>SCALE</b> Graphic	<b>By:</b> BRO
	<b>MSA, P.C.</b>  5033 Rouse Drive, Virginia Beach, VA. 23462 (757) 490-9264 (ofc) (757) 490-0634 (fax) <a href="http://www.msaonline.com">www.msaonline.com</a> Environmental Sciences + Planning + Surveying Engineering + Landscape Architecture			
<b>KUZZENS- MAPPSVILLE NORTH PACKING PLANT MAPPSVILLE, VIRGINIA</b>				

**Note #1 (C-I.4 #3.c)**

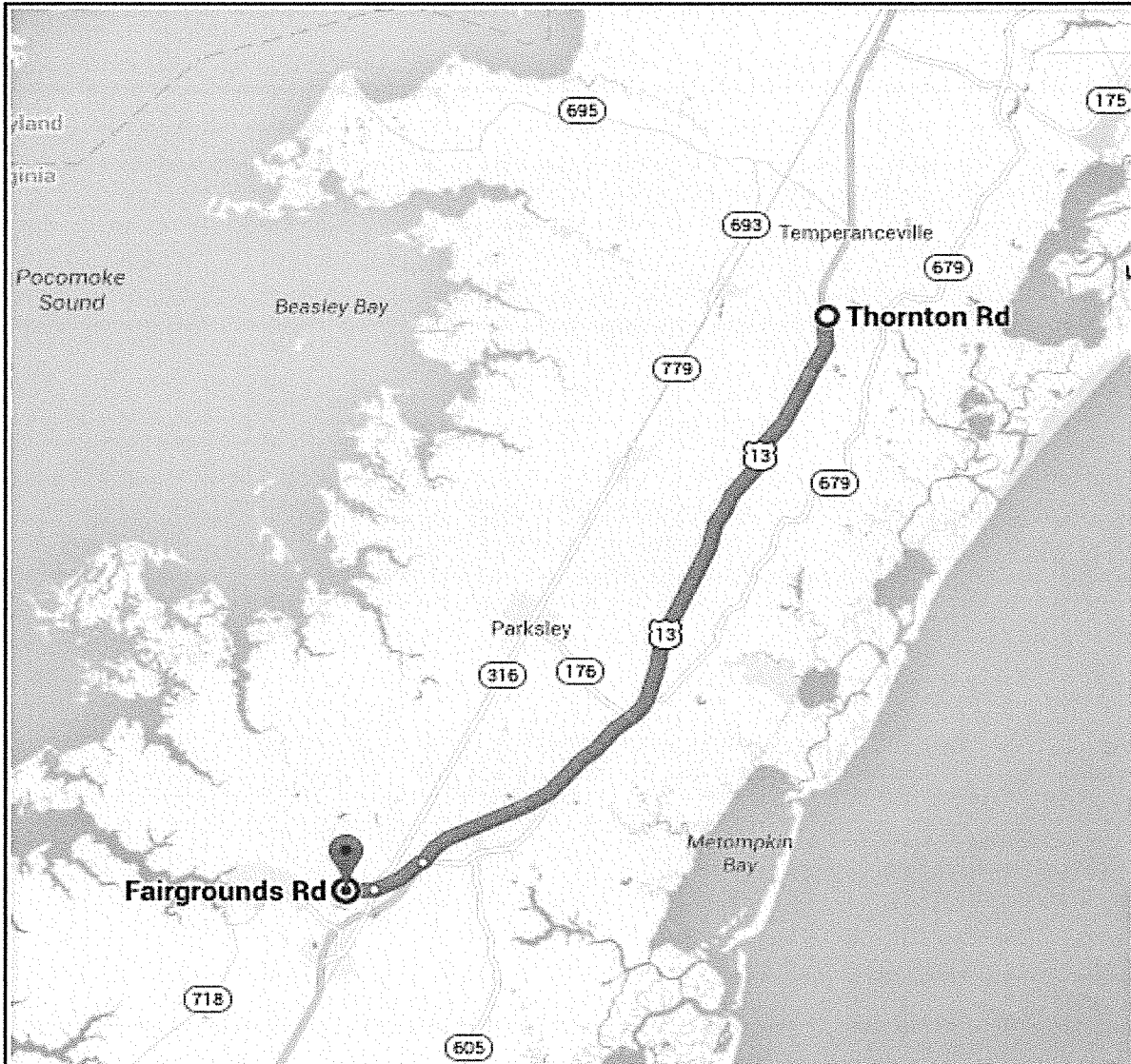
This is not a new facility; it was previously operated for tomato processing using the same equipment and general process. The facility owner has changed, necessitating a new permit, and the vegetable type has changed to potato. The process is similar but the disinfectant (chlorine dioxide) used in washing is different. The disinfectant is not added to the flume wash water but is only applied to the potatoes after washing.

**Note #2 (C-I.7 #5)**

Figure 2 is a schematic and line drawing of the facility and process. Approximately 10,000 gallons of wastewater (used flume wash water) will be generated per day. Waste wash water will be conveyed to a series of two (2) 6,000-gallon holding tanks utilizing a 200-gpm transfer pump. The 12,000 gallons of storage capacity provides nearly 1 day worth of detention time that will allow any sediments or solids in the wastewater to settle prior to field application.

Wastewater will be transferred from the storage tank into the spray truck by a 48-gpm transfer pump. The spray truck will drive along 7 parallel lines (A-G on Figure 4) to discharge the wash water. The cumulative application rate along each line will not exceed 1"/day, or as directed by the permit. The application rate will be pre-determined by recording the amount of discharge applied over a given area for a specific truck speed and that speed will be maintained during each application. Wastewater is sequentially applied to each section to ensure uniform coverage.

cull disposal  
route 146



Source: Virginia Google Maps



**FIGURE 6.  
CULL DISPOSAL TRUCK ROUTE**

**KUZZENS- MAPPSVILLE NORTH PACKING PLANT  
MAPPSVILLE, VIRGINIA**

MSA JOB # 08719AO	DATE: 1/22/2014	SCALE Graphic	By: MME
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**MSA, P.C.**



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12201 LANKFORD HIGHWAY  
HALLWOOD, VA 23359

WHAPLES FARM

MERRYBRANCH ROAD

23-A

19.5

23-B

20.1

23-C

20.1

23-D

19.4

23-E

19.9



ACCOMACK COUNTY  
WATERSHEDS CB38 & CB 39

FAIRGROUND ROAD

- Generally it is not necessary to thatch fescue turf however if the thatch matt is found to be inhibiting water penetration thatching will be prescribed followed by reseeding at the specified rate for established turfs.

During the active growing season the turf is cut on a weekly basis to maintain a turf height of 2.5 - 4". Spray application is monitored to ensure adequate coverage. Consistent coverage and the prevention of wet spots along with management of nitrogen is the primary control for brown patch.

## II. NUTRIENT MANAGEMENT PLAN

A nutrient management plan (NMP) has been developed and is located in Appendix F.

## III. SPRAY FIELD LAND APPLICATION METHODS AND EQUIPMENT

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The method for land application of waste wash water used at this facility will be spray irrigation via truck mounted spreader rack. Upon the completion of each packing work day, an average of 10,000 gallons per day is spray irrigated. Wastewater is transferred from the storage tanks to a 3,600 gallon capacity spray truck using a 48gpm transfer pump.

Each 10,000 gallon spray event will be applied to one of the seven spray field discharge lines (0.5 inches depth). Each spray event will cover the next sequential spray field discharge line such that the entire field will be covered over the span of 7 spray events (7 days). This provides approximately 1 week rest per discharge line. Application rates are adjusted by speed of the spray trucks.

Over application is prevented by the operator visually inspecting and walking on the spray field to verify that the field appears dry enough to receive the wastewater. If the field appears to be wet, no spraying will be performed. The current volume application volume is small enough that the buffers are not needed.

Truck mounted spreader rack systems are very reliable for spray irrigation systems in that they are simple and have few parts. Since the facility will not use an irrigation system of piping, valves, controllers, and pumps, it will be less complicated and not require significant spare parts and equipment. In the event that a spray truck becomes in need of repair, or during wet periods when spraying cannot occur, the 12,000 gallon storage capacity is used to hold excess wastewater until it can be applied. If the transfer pump goes down, one-half of the volume of the vertical storage tanks can still gravity drain into the trucks providing at least 6000-gallons of holding capacity. For longer duration mechanical problems with the spray truck, a backup spray truck from another spray irrigation operation will be used. Since the spray field has excess capacity, the application rate can be increased so that the truck will have sufficient time between spray events at the two facilities.

#### IV. CULL DISPOSAL

Culls are defined as product that is not fit for wholesale distribution. Product is determined to be a cull when its size falls outside of customer criteria (either too large or too small), is physically defective (malformed, damaged, or ruptured) or is over ripe for packaging. The daily amount of culls produced will vary depending upon current quality of potatoes, customer requirements, and rate of harvest; all of which are unknown at this time.

Potato culls removed from the processing operation require disposal. Culls separated from marketable product after the washing process are loaded into a spreader truck for hauling to an offsite cull disposal field (see Figure 6).

The cull disposal area consists of an offsite field encompassing approximately 99 acres on soils suitable for the purpose (see Nutrient Management Plan). These fields have historically been used for disposal of culled tomatoes without any problems.

---

## Map Unit Legend

Accomack County, Virginia (VA001)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BhB	Bojac loamy sand, 2 to 6 percent slopes	9.0	9.0%
BkA	Bojac sandy loam, 0 to 2 percent slopes	68.3	68.0%
DrA	Dragston fine sandy loam, 0 to 2 percent slopes	9.5	9.5%
MuA	Munden sandy loam, 0 to 2 percent slopes	13.6	13.6%
Totals for Area of Interest		100.5	100.0%



## ATTACHMENT A

Summary of Currently Approved Land Application Sites for Wastewater

Permittee's Name: KUZZENS, INC ., Mappsville, VA

Owner's Name: Gerard B. O'Dell, Jr., Chief Farming Officer

<u>Site Location</u>	<u>Operator &amp; Owner</u>	<u>Field Designation*</u>	<u>Net Acres</u>	<u>Field Productivity Class for grass hay</u>				<u>percent</u>
Mappsville, Accomack Co., Kuzzen's MappsvilleNorth Property		Wastewater Spray Field	3.39	III	Bojac loamy sand	Bhb		40
					Bojac sandy loam	BkA		50
					Munden sandy loam	MuA		07
					Dragston sandy loam	DrA		03

The exact location of all sites can be found in the VPA application.

The crop grown on each of the fields is fescue grass which has an annual PAN requirement of 130 lbs/acre.

Summary of Currently Approved Land Application Sites for Cull Disposal

Permittee's Name: KUZZENS, INC ., Mappsville, VA

Land Owner's Name: Steve Van Kesteren (authorized by agreement dated 09/24/14)

<u>Site Location</u>	<u>Operator &amp; Owner</u>	<u>Field Designation*</u>	<u>Net Acres</u>	<u>Field Productivity Class for crops**</u>				<u>percent</u>
Mappsville, Accomack Co.,	Whaples Farm	Cull Application Fields	99	III	Bojac loamy sand	Bhb	09	
				I	Bojac sandy loam	BkA	68	
					Munden sandy loam	MuA	14	
					Dragston sandy loam	DrA	10	

The exact location of all sites can be found in the VPA application.

\*\*The crops grown on each of the cull fields (wheat, soybeans &amp; corn) can be found in the NMP.

## ATTACHMENT 3

### SPECIAL CONDITIONS & RATIONALE

## SPECIAL CONDITIONS

### B. Other Requirements or Special Conditions

#### 1. Stormwater Discharge Exception

All pollutant management activities covered under this permit shall maintain no point source discharge of pollutants to surface waters except in the case of a storm event greater than the 25-year, 24-hour storm. The operation of the facilities of the owner permitted herein shall not contravene the Water Quality Standards, as adopted and amended by the Board, or any provision of the Water Control Law.

#### 2. Materials Handling/Storage

Any and all product, materials, industrial wastes, and/or other wastes resulting from the purchase, sale, mining, extraction, transport, preparation and/or storage of raw or intermediate materials, final product, by-product or wastes, shall be handled, disposed of and/or stored in such a manner so as not to permit a discharge of such product, materials, industrial wastes and/or other wastes to State waters, except as expressly authorized.

#### 3. Operations & Maintenance Manual (O & M)

The owner shall maintain an O & M Manual for the treatment works/pollutant management system permitted herein. This manual shall reflect the practices and procedures, including applicable Best Management Practices (BMPs), followed by the permittee to ensure compliance with the requirements of this permit. Facility operations in the manual will include a narrative that wastewater shall be applied uniformly the entire length of the application field, so that the north end of the site receives equal distribution and loading. Any changes in those practices and procedures shall be documented and submitted for staff approval within 90 days of the effective date of the changes. Upon approval of the submitted manual changes, the revised manual becomes an enforceable part of the permit.

**Revised Manual Due: 90 days from the effective date of the permit; no later than June 10, 2015**

#### 4. Vegetative Cover

The permittee shall maintain a complete and healthy vegetative cover of grasses on in-service wastewater land application sites through liming, gypsum amendments, fertilization, reseeding and weed control, as necessary.

### C. Site Specific Special Conditions

#### 1. Application To Approved Sites

Wastewater shall be applied only at the sites identified in Attachment A.

#### 2. Application Rates

Wastewater shall not be applied at the rates that exceed 0.25 in/hr maximum, 1 in/day maximum and 2 in/week maximum. At no time shall wastewater be surface applied at a hydraulic loading rate greater than 14,000 gallons/acre (0.5 inches depth) in a single application pass or procedure.

#### 3. Operational Requirements: For all land treatment of wastewater, the following are required:

- a. There shall be no application of wastewater to the ground when it is saturated, frozen or covered with ice or snow, and during periods of rainfall.
- b. The chosen method of wastewater application shall minimize human contact with the wastewater.
- c. Application or irrigation systems used for land treatment of wastewater shall be designed, installed and adjusted to:
  1. Provide uniform distribution of wastewater over the land treatment site,
  2. Prevent ponding or pooling of wastewater at the land treatment site,

3. Facilitate maintenance and harvesting of the land treatment site and precludes damage to the application or irrigation system from the use of maintenance or harvesting equipment,
4. Prevent aerosol carry-over from the land treatment site to areas beyond the setback distances described in Part I.C. 5. (buffer zones); and
5. Prevent clogging from algae or suspended solids.

d. Any wastewater runoff shall be confined to the land application site.

#### 4. Annual Project Summary Report

An annual project summary report shall be prepared and submitted to the Tidewater Regional Office by January 10<sup>th</sup> of each year. The report shall include:

- a. A summary of the monitoring data results including wastewater analysis, soil monitoring, groundwater monitoring, and pesticide scan testing results.
- b. The yearly water balance showing such items as inputs/drawdown from storage facilities, rainfall and application rates.
- c. Land application site information describing the wastewater applied to each field during the previous year with the annual and cumulative loadings of limiting constituents (such as nitrogen and metals) and the remaining site life for each field.
- d. A summary of the agronomic practices which occurred during the preceding growing season including but not limited to the timing and number of crop cuttings, and an estimate of total crop yield (bushel/acre or tons/acre) removed from the site, any lime and fertilizer additions made to the site (describe type and quantities) and reseeding.
- e. A summary of the results from all spreader tanker calibrations performed over the past year which includes, but shall not be limited to, the calibration method used, spreader settings and vehicle speed required to comply with all application rate restrictions in the permit. A minimum of one calibration a season is required, if equipment remains the same and a minimum of three calibrations per season is required for new spreader tanker equipment introduced.
- f. A discussion of compliance with the facility's Nutrient Management Plan which may include nitrogen supplementation and/or soil amendment requirements.

#### 5. Buffer zones\*

Buffer zones shall be maintained as follows:

- |    |   |            |
|----|---|------------|
| a. | Distance from improved roadways   | 25 feet    |
| b. | Distance from occupied dwellings  | 200 feet   |
| c. | Distance from water supply wells or springs   | 100 feet   |
| d. | Distance from surface water courses<br>(for surface application)  | 50 feet    |
| e. | Distance from property lines<br>(for surface application)<br>unless reduced by adjoining property owners) **  | 100 feet** |
| f. | Distance from artificial agricultural drainage<br>ditches whose primary purpose is to lower the<br>seasonal high water table and where slopes are less<br>than or equal to 2% (surface applied) | 10 feet    |

\*Buffer zones are areas which are not subjected to wastewater, whether by irrigation, overspray, windblown mist, runoff or other means.

\*\*Reductions agreed to by adjoining property owner should be in writing.

#### 6. Wind Restrictions

Land application of wastewaters shall not occur during winds of sufficient strength to cause overspray or drifting of aerosols into or beyond the buffer zones listed in Part I.C.5.

#### 7. Soil pH at Wastewater Application Sites

The soil pH at land application sites shall be adjusted with gypsum or lime, if necessary, to meet a pH approximating 6.5 S.U. (maximum).

8. Crop Harvesting Requirement

During the period of June 1 through August 31, the permittee shall cut fescue grass grown on the land application site weekly and shall prevent thatch buildup or matting. This requirement shall be included in the operations and maintenance manual.

9. Nutrient Management Plan (NMP)

The permittee shall apply a supplemental nitrogen source, if recommended, to the crops at the land application site(s) (wastewater and cull fields) in accordance with the rates recommended by the Nutrient Management Plan.

10. Wastewater Application Rates, PAN Rates and Soil Productivity Group

The application of wastewater together with any other source of plant available nitrogen (PAN) shall not exceed the agronomic loading rate for the crop(s) grown on each site as detailed in the table in Attachment C (fescue pasture @ productivity class 3 utilizes 130 lbs PAN/acre). PAN calculations should be made using the results from the most recent season's wastewater samples. The resulting application rates shall be included in the annual summary report due each January 10<sup>th</sup> to the Department of Environmental Quality Tidewater Regional Office.

11. Ground Water Monitoring Plan

The permittee shall submit a groundwater monitoring plan within 90 days of permit issuance which will state that **sampling shall be performed each August and include the parameters stipulated in Part I.A. of this permit. A pesticides scan** (EPA method 608) with electron capture detector and a nitrogen phosphorus detector shall be performed on the groundwater samples **every 4 years**. The purpose of this plan is to determine if the system integrity is being maintained and to indicate if activities at the site are resulting in violations of the Board's Ground Water Standards. The approved plan is an enforceable part of the permit. Any changes to the plan must be submitted for approval to the Tidewater Regional Office.

If monitoring results indicate that any unit has contaminated the ground water, the permittee shall submit a corrective action plan within 60 days of being notified by the regional office. The plan shall set forth the steps to be taken by the permittee to ensure that the contamination source is eliminated or that the contaminant plume is contained on the permittee's property. In addition, based on the extent of contamination, a risk analysis may be required. Once approved, this plan and/or analysis shall be incorporated into the permit by reference and become an enforceable part of this permit.

12. Pesticides – Wastewater Monitoring

The permittee shall conduct, within the first two weeks of seasonal washing operations, an annual pesticide scan using EPA Method 608 with electron capture detector and a nitrogen phosphorus detector to determine the presence of agricultural pesticides in the wastewater prior to land application. Results shall be submitted with the annual project summary report due January 10th.

13. Solids Disposal

- a. All organic solids resulting from the vegetable processing operation, shall be disposed of daily by spreading and disking the material evenly into the soil within 48 hours or as soon as practical in the event of adverse weather conditions. The solids disposal location will be limited to the acre area identified in the permit application. No solids disposal shall occur at the spray irrigation site.
- b. The pH at all of the waste potato disposal sites shall be checked before application begins each year. The soil pH shall be adjusted to 6.0 - 6.5 SU (maximum) before application of the waste begins. The pH shall also be checked at the end of the disposal season and adjusted to 6.0-6.5 SU, if necessary. Documentation is required and shall be maintained for inspection.
- c. A winter cover crop shall be planted at all waste disposal sites no later than November 15 of each disposal year.
- d. A minimum buffer zone of fifty (50) feet shall be established for all nearby water courses (ditches or swales, intermittent or free flowing streams and wetland areas). No organic solids or resulting runoff from said solids

shall be allowed to reach State waters by natural or other means.

- e. A record of disposal dates, location and approximate quantity shall be maintained by the permittee for staff inspection and a copy of the record shall be provided with the annual summary report due January 10<sup>th</sup>.

14. Wastewater Characterization and Site Life/Balance Calculations

If not performed previously, 1) the permittee shall conduct, within the first 2 months of active operation following permit reissuance, a wastewater characterization by analyzing for the applicable parameters listed on pages C.1.4. through C.1.7. of VPA Form C. Include all applicable pesticides and herbicides believed present; 2) Land requirements/site life and balance calculations from 2009 need to be updated when current data becomes available (required on Page C-II.2, Appendix V of application (acres required based on balance calculations for each parameter, including metals and hydraulic loadings).

## TABLE II

Basis for Special Conditions in Part I.B and Part I.C.

**SPECIAL CONDITION RATIONALES****B. Other Requirements or Special Conditions****1. Stormwater Discharge Exception**

**Rationale:** Required by the VPA Permit Regulation, 9 VAC 25-32-30A; also in accordance with the VPA Permit Manual (6/92), Interim Guidance Memo No. 01-2005: Wastewater Spray Irrigation and Reuse of Wastewater dated January 18, 2001 and Guidance Memo No. 93-023: Procedures For Processing VPA Permits For The Food Processing Category.

**2. Materials Handling/Storage**

**Rationale:** In accordance with Interim Guidance Memo No. 01-2005: Wastewater Spray Irrigation and Reuse of Wastewater dated January 18, 2001 and Guidance Memo No. 93-023: Procedures For Processing VPA Permits For The Food Processing Category.

**3. Operations and Maintenance Manual Requirements**

**Rationale:** In accordance with Interim Guidance Memo No. 01-2005: Wastewater Spray Irrigation and Reuse of Wastewater dated January 18, 2001 and Guidance Memo No. 93-023: Procedures For Processing VPA Permits For The Food Processing Category. Also required by the State Water Control Law, Section 62.1-44.19; the Sewerage Regulations (12 VAC 5-580-10 et seq.) [Procedure for Operations and Maintenance Manuals].

**4. Vegetative Cover**

**Rationale:** In accordance with OWRM Program Guidance No. 94-002 - Regional Directors Authorization to Process VPA Permits for Land Application of Municipal Wastewater, dated February 15, 1994 and DEQ staff's best professional judgment.

**C. Site Specific Special Conditions:****1. Application to Approved Sites**

**Rationale:** In accordance with the VPA Permit Manual (6/92), Interim Guidance Memo No. 01-2005: Wastewater Spray Irrigation and Reuse of Wastewater dated January 18, 2001 and Guidance Memo No. 93-023: Procedures For Processing VPA Permits For The Food Processing Category.

**2. Application Rates**

**Rationale:** In accordance with Interim Guidance Memo No. 01-2005: Wastewater Spray Irrigation and Reuse of Wastewater dated January 18, 2001, Guidance Memo No. 93-023: Procedures For Processing VPA Permits For The Food Processing Category and in accordance with OWRM Program Guidance No. 94-002 - Regional Directors Authorization to Process VPA Permits for Land Application of Municipal Wastewater, dated February 15, 1994.

**3. Operational Requirements**

**Rationale:** Components are in accordance with Interim Guidance #01-2005 - Spray Irrigation and Reuse of Wastewater dated January 18, 2001, Guidance Memo No. 93-023: Procedures For Processing VPA Permits For The Food Processing Category and OWRM Program Guidance No. 94-002 - Regional Directors Authorization to Process VPA Permits for Land Application of Municipal Wastewater, dated February 15, 1994.

**4. Annual Project Summary Report**

**Rationale:** Components are in accordance with Interim Guidance #01-2005 - Spray Irrigation and Reuse of Wastewater dated January 18, 2001, Guidance Memo No. 93-023: Procedures For Processing VPA Permits For The Food Processing Category and OWRM Program Guidance No. 94-002 - Regional Directors Authorization to

Process VPA Permits for Land Application of Municipal Wastewater, dated February 15, 1994. This is also a standard condition for land application of wastewater in accordance with the VPA Permit Manual .

5. **Buffer Zones**

**Rationale:** Applicable components are in accordance with Interim Guidance #01-2005 - Spray Irrigation and Reuse of Wastewater dated January 18, 2001, Guidance Memo No. 93-023: Procedures For Processing VPA Permits For The Food Processing Category and OWRM Program Guidance No. 94-002 - Regional Directors Authorization to Process VPA Permits for Land Application of Municipal Wastewater, dated February 15, 1994. This is also a standard condition for land application of wastewater in accordance with the VPA Permit Manual .

6. **Wind Restrictions**

**Rationale:** In accordance with best professional judgment (BPJ) and previous permit

7. **Soil pH at Wastewater Application Sites**

**Rationale:** In accordance with DCR recommendations and best professional judgment (BPJ).

8. **Crop Harvesting Requirement**

**Rationale:** Applicable components in accordance with OWRM Program Guidance No. 94-002 - Regional Directors Authorization to Process VPA Permits for Land Application of Municipal Wastewater, dated February 15, 1994; permit application O & M and staff's best professional judgment.

9. **Nutrient Management Plan (NMP)**

In accordance with permit application's NMP, as well as DCR recommendations

10. **Wastewater Application Rates, PAN Rates and Soil Productivity Groups**

**Rationale:** In accordance with the VPA Permit Manual and OWRM Guidance No 93-023: Procedures For Processing VPA Permits For The Food Processing Category dated September 20, 1993 and PAN rates (attachment C).

11. **Ground Water Monitoring Plan**

**Rationale:** In accordance with OWRM Guidance No. 98-2010; VPA Permit Ground Water Monitoring Plan previously stipulated by VPA Permit No. 1044

12. **Pesticides – Wastewater Monitoring**

**Rationale:** In accordance with Interim Guidance #01-2005 - Spray Irrigation and Reuse of Wastewater dated January 18, 2001, Guidance Memo No. 93-023: Procedures For Processing VPA Permits For The Food Processing Category and DEQ staff's best professional judgment.

13. **Solids Disposal**

**Rationale:** In accordance with Interim Guidance #01-2005 - Spray Irrigation and Reuse of Wastewater dated January 18, 2001, Guidance Memo No. 93-023: Procedures For Processing VPA Permits For The Food Processing Category and facility operations per NMP submitted June 13, 2014..

14. **Wastewater Characterization Update**

**Rationale:** In accordance with requirements for a complete VPA application for permit reissuance.



## ATTACHMENT 4

### MONITORING BASIS

**Attachment 4**  
**Monitoring Basis**  
**SPRAY IRRIGATION WASTEWATER**

Permit No. VPA01082

Wash water (onsite well) from the potato flume is collected in one of the two 6,000 gallon storage tanks. Storage tanks allow for two days storage capacity. Tank wash water is transferred to a 3,600 gallon capacity spray truck using a 48 gpm transfer pump. Each days spray event will be applied to one of seven travel lanes (field pathways designated as lines A through G) on a 3.39 acre field behind the facility. Soils are predominantly Bojac soils with fescue grass being the cover crop. Some of the monitored parameters for the spray irrigation wastewater, as well as soils, have been deleted or changed to conform more closely with the following sources: Interim Guidance #01-2005, Spray Irrigation and Reuse of Wastewater, dated January 18, 2001; OWRM Guidance Memo No. 93-023: Procedures For Processing VPA Permits for the Food Processing Category; the latest permit application and its Nutrient Management Plan (NMP). Based upon previous site effluent data, copper and zinc were the primary heavy metals of concern for this facility. The pesticide Fipronil, used on the potato plants when growing, was present in washwater sample results at 0.76 ug/l in a similar Florida operation. Although this pesticide is toxic to aquatic life, after consideration, it was not singled out for monitoring outside of the required 608 pesticide scan for the following reasons: 1) a 150 ft. vegetated buffer is present to the nearest water course (intermittent flowing drainageway); 2) it is applied only during planting and should be less of a concern after harvest. Also, it is not applied at a rate or during conditions that would allow runoff and 3) it was a relatively low concentration in the washwater and degrades rapidly in water/sun (half life of 4-12 hrs). Two other pesticides Azoxystrobin and Imidacloprid were found in the washwater at the FL. operation but were just above the limit of quantification.

All restrictions are spelled out in permit special conditions and are in compliance with the referenced sources cited above. The following parameters shall be monitored 2/month in the wastewater prior to spray application with the **exceptions noted here or below**: Monthly spray irrigation/land application monitoring reports (DMRs) for the **off season of November through April** are not required to be submitted to the regional office at the frequency required by the permit if there has been no activity at the facility or the fields during one of those months. Other requirements such as annual reports are due in accordance with deadlines stated in the permit (refer to FS pages 89-90 for further rationale).

**WASTEWATER MONITORING**

1. **Flow:** BPJ - Flow is measured **daily** to determine the hydraulic loading of the soils, as well as for plant uptake and PAN. Reference Interim Guidance #01-2005, Spray Irrigation and Reuse of Wastewater, dated January 18, 2001. Total Volume Applied (MG) shall be calculated **monthly**.
2. **Application Rates:** *maximum* loadings (**in/hr., in/day and in/wk**) are cited in Interim Guidance #01-2005, Spray Irrigation and Reuse of Wastewater, dated January 18, 2001, as well as OWRM Guidance Memo No. 93-023: Procedures For Processing VPA Permits for the Food Processing Category.
3. **pH:** BPJ - pH is limited to a range of 6.0 to 9.0 SU to protect ground water and provide a satisfactory environment for growing grasses used for nutrient uptake.
4. **Chlorides & TDS:** Interim Guidance #01-2005, Spray Irrigation and Reuse of Wastewater, dated January 18, 2001 and BPJ – This parameter is of concern due to the well wash water.
5. **Dissolved Copper & Zinc:** - In accordance with Interim Guidance #01-2005, Spray Irrigation and Reuse of Wastewater, dated January 18, 2001 and DEQ Guidance Memorandum no. 98-2010 - VPDES and VPA Permit Ground Water Monitoring Plans – reported values have historically been high due to pesticides & fungicides used on the plants. Monitoring should be continued for these heavy metals in the dissolved form.

- 27
6. **TKN; Nitrate Nitrogen; Ammonia Nitrogen; Available Phosphorus; Available Potassium, PAN:** Interim Guidance #01-2005, Spray Irrigation and Reuse of Wastewater, dated January 18, 2001; OWRM Guidance Memo No. 93-023: Procedures For Processing VPA Permits for the Food Processing Category; the latest permit application and its Nutrient Management Plan (NMP) and BPJ – to protect ground water standards and establish a NMP based upon the plant available nitrogen (PAN), as well as the other nutrients required for a productive cover crop.

#### GROUND WATER MONITORING

Parameters (static water level, pH, TDS, TOC, chlorides and , nitrate-nitrogen) for groundwater monitoring are in conformance with standard recommendations in **Guidance Memorandum No. 98-2010 - VPDES Permit and VPA Permit Ground Water Monitoring Plans.** Total recoverable copper and zinc shall be monitored to ascertain the effect of these heavy metals in the wastewater and a **pesticide scan** (method 608) **every 4 years** to determine the effects of pesticide constituents from fungicides, etc. upon the ground water. Sampling shall be performed 1/year in August (*end of spray application season*) to more accurately gauge potential impacts. Results are due with January's annual report. With the exception of static water level, analyses should be performed on a grab sample. Metals shall be reported in the "total recoverable" form based upon the expression of State ground water standards.

#### SOILS MONITORING

Based upon Interim Guidance #01-2005, Spray Irrigation and Reuse of Wastewater, dated January 18, 2001; to evaluate nutrient removal from the spray irrigation, standard monitoring parameters will include pH (s.u.), exchangeable potassium and available phosphorus and total nitrogen.

Soils monitoring will be 1/year. A representative composite sample for 3+ acres should be comprised of at least 10 cores taken at 4-6 inches soil depth.

## Full Parameter List

<u>Chemical</u>	<u>Components</u>	<u>Concentrations</u>
Macho 2.0FL Insecticide	Imidacloprid	To be provided
Vydate	Oxamyl, methanol	To be provided
Early Harvest	Cytokinin, Indole Butyric Acid, Gibberellic Acid	To be provided
Ultra Flourish	Mefenoxam, Petroleum Distillates, Napthalene, 1,2,4 Trimethylbenzene, Cumene	To be provided
Quadris	Propylene Glycol, Azoxystrobin	To be provided
Regent	fipronil	To be provided
Manzate	Mancozeb, ethylene thiourea	To be provided
Bravo Ultra	chlorothalonil	To be provided
Curzate DF 60	Cymoxanil	To be provided
Dual Magnum	Petroleum solvent, 1,2,4-trimethylbenzene, naphthalene, s-metolachlor	To be provided
Sencore	Metribuzin, sodium aluminum silicate, quartz, crystalline quartz	To be provided
Intensity one	Clethodim, xylene, naphthalene	To be provided
Matrix	rimsulfuron	To be provided
Reglone	Diquat dibromide	To be provided
Aim	Naphtha, carfentrazone-ethyl, 2-methylnaphthalene, propylene glycol, xylenes, naphthalene, 1-methylnaphthalene	To be provided
Asana XL	Esfenvalerate, ethylbenzene	To be provided
Round up	glyphosate	To be provided
Rimon	n-methyl-2-pyrrolidone, novaluron	To be provided
Selectrocide	Chlorine dioxide (gas)	To be provided

\* Nothing added to wash water. No sodium hypochlorite is used. Chlorine dioxide (Selectrocide) is sprayed to disinfect product after washing and some may drain back or otherwise get into flume washwater. The chemical substances listed are from the products MSDS.

Similar  
RESULTS FROM FL.  
OPERATION THAT  
WASHES POTATOES  
Site specific data  
forthcoming

April 29, 2014

Mr. Charles Hall  
MSA, P.C.  
5033 Rouse Dr  
Virginia Beach, VA 23462

RE: Project: Virginia Farm  
Pace Project No.: 92197241

Dear Mr. Hall:

Enclosed are the analytical results for sample(s) received by the laboratory on April 11, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angela M. Baioni

Angela Baioni  
angela.baioni@pacelabs.com  
Project Manager

Enclosures

cc: Rochelle Parris, MSA, P.C.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc..



Pacific Agricultural Laboratory

12505 N.W. Cornell Rd. • Portland, OR 97229-5651 • Ph 503.626.7943 • Fx 503.641.0644

Pace Analytical Services, Inc.  
9800 Kincey Ave. Suite 100  
Huntersville, NC 28078

Report Number: P140341  
Report Date: April 29, 2014  
Client Project ID: 92197251

## Analytical Report

Client Sample ID: Flume  
Matrix: water

PAL Sample ID: P140341-01  
Sample Date: 4/11/14

Extraction Date	Analysis Date	Analyte	Amount Detected	Limit of Quantitation	Notes
Method: EPA 547 (HPLC-FLD)					
4/21/14	4/22/14	AMPA	Not Detected	10 ug/L	
4/21/14	4/22/14	Glyphosate	Not Detected	10 ug/L	
Method: EPA 630.1 (GC-FPD)					
4/18/14	4/18/14	Mancozeb	Not Detected	10 ug/L	
4/18/14	4/18/14	Maneb	Not Detected	10 ug/L	
4/18/14	4/18/14	Nabam	Not Detected	10 ug/L	
4/18/14	4/18/14	Thiram	Not Detected	10 ug/L	
4/18/14	4/18/14	Vapam	Not Detected	10 ug/L	
4/18/14	4/18/14	Zineb	Not Detected	10 ug/L	
4/18/14	4/18/14	Ziram	Not Detected	10 ug/L	
Method: Modified EPA 8270D (GC-MS SIM)					
4/16/14	4/28/14	Chlorothalonil	Not Detected	0.060 ug/L	
4/16/14	4/28/14	Fipronil	0.76 ug/L	0.060 ug/L	
4/16/14	4/28/14	Mefenoxam	Not Detected	0.060 ug/L	
4/16/14	4/28/14	Metolachlor	Not Detected	0.060 ug/L	
4/16/14	4/28/14	Metribuzin	Not Detected	0.060 ug/L	
Method: Modified EPA 8321B (HPLC-MS)					
4/16/14	4/21/14	Azoxystrobin	0.22 ug/L	0.12 ug/L	
4/16/14	4/21/14	Carfentrazone-ethyl	Not Detected	0.12 ug/L	
4/17/14	4/18/14	Clethodim	Not Detected	1.0 ug/L	
4/16/14	4/21/14	Cymoxanil	Not Detected	0.12 ug/L	
4/16/14	4/21/14	Imidacloprid	0.32 ug/L	0.12 ug/L	
4/16/14	4/21/14	Novaluron	Not Detected	0.12 ug/L	
4/16/14	4/21/14	Oxamyl	Not Detected	0.12 ug/L	

Rick Jordan, Laboratory Manager

## ANALYTICAL RESULTS

Project: Virginia Farm  
Pace Project No.: 92197241

Sample: Flume		Lab ID: 92197241001	Collected: 04/11/14 09:40	Received: 04/11/14 15:42	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>625 MSSV</b>		Analytical Method: EPA 625 Preparation Method: EPA 625						
bis(2-Ethylhexyl)phthalate	ND ug/L		4.9	1	04/18/14 08:00	04/22/14 01:36	117-81-7	
Naphthalene	ND ug/L		4.9	1	04/18/14 08:00	04/22/14 01:36	91-20-3	
<b>Surrogates</b>								
Nitrobenzene-d5 (S)	48 %		37.3-107.7	1	04/18/14 08:00	04/22/14 01:36	4165-60-0	
2-Fluorobiphenyl (S)	57 %		35.3-102.4	1	04/18/14 08:00	04/22/14 01:36	321-60-8	
Terphenyl-d14 (S)	67 %		50.1-115.1	1	04/18/14 08:00	04/22/14 01:36	1718-51-0	
Phenol-d6 (S)	17 %		10-47.1	1	04/18/14 08:00	04/22/14 01:36	13127-88-3	
2-Fluorophenol (S)	27 %		16.3-59.8	1	04/18/14 08:00	04/22/14 01:36	367-12-4	
2,4,6-Tribromophenol (S)	72 %		54.2-114.4	1	04/18/14 08:00	04/22/14 01:36	118-79-6	
<b>624 Volatile Organics</b>		Analytical Method: EPA 624						
Acrylonitrile	ND ug/L		10.0	1		04/25/14 13:52	107-13-1	
Chloroform	ND ug/L		1.0	1		04/25/14 13:52	67-66-3	
Dibromochloromethane	ND ug/L		0.50	1		04/25/14 13:52	124-48-1	
Ethylbenzene	ND ug/L		1.0	1		04/25/14 13:52	100-41-4	
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90 %		71-111	1		04/25/14 13:52	460-00-4	
Toluene-d8 (S)	98 %		77-116	1		04/25/14 13:52	2037-26-5	
1,2-Dichloroethane-d4 (S)	106 %		79-123	1		04/25/14 13:52	17060-07-0	

## REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.

9800 Kinney Ave. Suite 100

Huntersville, NC 28078

Report Number: P140341

Report Date: April 29, 2014

Client Project ID: 92197251

## Quality Assurance

### Method Blank Data

Matrix: water

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
4/16/14	4/21/14	4041601-BLK1	Azoxystrobin	Not Detected	< 0.12 ug/L	
4/16/14	4/21/14	4041601-BLK1	Carfentrazone-ethyl	Not Detected	< 0.12 ug/L	
4/16/14	4/28/14	4041601-BLK1	Chlorothalonil	Not Detected	< 0.060 ug/L	
4/16/14	4/21/14	4041601-BLK1	Cymoxanil	Not Detected	< 0.12 ug/L	
4/16/14	4/28/14	4041601-BLK1	Fipronil	Not Detected	< 0.060 ug/L	
4/16/14	4/21/14	4041601-BLK1	Imidacloprid	Not Detected	< 0.12 ug/L	
4/16/14	4/28/14	4041601-BLK1	Mefenoxam	Not Detected	< 0.060 ug/L	
4/16/14	4/28/14	4041601-BLK1	Metolachlor	Not Detected	< 0.060 ug/L	
4/16/14	4/28/14	4041601-BLK1	Metribuzin	Not Detected	< 0.060 ug/L	
4/16/14	4/21/14	4041601-BLK1	Novaluron	Not Detected	< 0.12 ug/L	
4/16/14	4/21/14	4041601-BLK1	Oxamyl	Not Detected	< 0.12 ug/L	

### Method Blank Data

Matrix: water

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
4/17/14	4/18/14	4041701-BLK1	Clethodim	Not Detected	< 1.0 ug/L	

### Method Blank Data

Matrix: water

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
4/18/14	4/18/14	4041802-BLK1	Mancozeb	Not Detected	< 10 ug/L	
4/18/14	4/18/14	4041802-BLK1	Maneb	Not Detected	< 10 ug/L	
4/18/14	4/18/14	4041802-BLK1	Nabam	Not Detected	< 10 ug/L	
4/18/14	4/18/14	4041802-BLK1	Thiram	Not Detected	< 10 ug/L	
4/18/14	4/18/14	4041802-BLK1	Vapam	Not Detected	< 10 ug/L	
4/18/14	4/18/14	4041802-BLK1	Zineb	Not Detected	< 10 ug/L	
4/18/14	4/18/14	4041802-BLK1	Ziram	Not Detected	< 10 ug/L	

### Method Blank Data

Matrix: water

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
4/21/14	4/22/14	4042110-BLK1	AMPA	Not Detected	< 10 ug/L	
4/21/14	4/22/14	4042110-BLK1	Glyphosate	Not Detected	< 10 ug/L	

Rick Jordan, Laboratory Manager





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9800 Kincey Ave. Suite 100

Huntersville, NC 28078

**Report Number:** P140341

**Report Date:** April 29, 2014

**Client Project ID:** 92197251

**Blank Spike Data**

**Matrix:** water

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
4/16/14	4/21/14	4041601-BS1	Azoxystrobin	104	52-138	
4/16/14	4/21/14	4041601-BSD1	Azoxystrobin	90	52-138	
4/16/14	4/21/14	4041601-BS1	Carfentrazone-ethyl	107	34-171	
4/16/14	4/21/14	4041601-BSD1	Carfentrazone-ethyl	103	34-171	
4/16/14	4/28/14	4041601-BS1	Chlorothalonil	102	60-140	
4/16/14	4/28/14	4041601-BSD1	Chlorothalonil	88	60-140	
4/16/14	4/21/14	4041601-BS1	Cymoxanil	81	60-140	
4/16/14	4/21/14	4041601-BSD1	Cymoxanil	80	60-140	
4/16/14	4/28/14	4041601-BS1	Fipronil	92	60-140	
4/16/14	4/28/14	4041601-BSD1	Fipronil	91	60-140	
4/16/14	4/21/14	4041601-BS1	Imidacloprid	91	60-140	
4/16/14	4/21/14	4041601-BSD1	Imidacloprid	95	60-140	
4/16/14	4/28/14	4041601-BS1	Mefenoxam	95	60-140	
4/16/14	4/28/14	4041601-BSD1	Mefenoxam	95	60-140	
4/16/14	4/28/14	4041601-BS1	Metolachlor	95	60-140	
4/16/14	4/28/14	4041601-BSD1	Metolachlor	95	60-140	
4/16/14	4/28/14	4041601-BS1	Metribuzin	95	60-140	
4/16/14	4/28/14	4041601-BSD1	Metribuzin	89	60-140	
4/16/14	4/21/14	4041601-BS1	Novaluron	90	60-140	
4/16/14	4/21/14	4041601-BSD1	Novaluron	92	60-140	
4/16/14	4/21/14	4041601-BS1	Oxamyl	66	60-140	
4/16/14	4/21/14	4041601-BSD1	Oxamyl	68	60-140	

**Blank Spike Data**

**Matrix:** water

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
4/17/14	4/17/14	4041701-BS1	Clethodim	69	60-140	
4/17/14	4/17/14	4041701-BSD1	Clethodim	68	60-140	

**Blank Spike Data**

**Matrix:** water

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
4/18/14	4/18/14	4041802-BS1	Carbon Disulfide	106	24-188	
4/18/14	4/18/14	4041802-BSD1	Carbon Disulfide	105	24-188	

Rick Jordan, Laboratory Manager



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Report Number: P140341

Report Date: April 29, 2014

Client Project ID: 92197251

Blank Spike Data

Matrix: water

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
4/21/14	4/22/14	4042110-BS1	AMPA	91	64-132	
4/21/14	4/22/14	4042110-BSD1	AMPA	98	64-132	
4/21/14	4/22/14	4042110-BS1	Glyphosate	98	65-133	
4/21/14	4/22/14	4042110-BSD1	Glyphosate	109	65-133	

#### Analyte Information

Method: EPA 547 (HPLC-FLD)

AMPA is the primary metabolite of Glyphosate. Glyphosate is quantitated as the free acid.

Method: EPA 630.1 (GC-FPD)

This is a presumptive method for thiocarbamates. Residues are identified as carbon disulfide.

Rick Jordan, Laboratory Manager

## QUALITY CONTROL DATA

Project: Virginia Farm  
Pace Project No.: 92197241

QC Batch:	MSV/11473	Analysis Method:	EPA 624
QC Batch Method:	EPA 624	Analysis Description:	624 MSV
Associated Lab Samples:	92197241001		

METHOD BLANK: 887530 Matrix: Water  
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acrylonitrile	ug/L	ND	10.0	04/25/14 13:27	
Chloroform	ug/L	ND	1.0	04/25/14 13:27	
Dibromochloromethane	ug/L	ND	0.50	04/25/14 13:27	
Ethylbenzene	ug/L	ND	1.0	04/25/14 13:27	
1,2-Dichloroethane-d4 (S)	%	106	79-123	04/25/14 13:27	
4-Bromofluorobenzene (S)	%	92	71-111	04/25/14 13:27	
Toluene-d8 (S)	%	98	77-116	04/25/14 13:27	

LABORATORY CONTROL SAMPLE: 887531

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acrylonitrile	ug/L	200	191	96	60-146	
Chloroform	ug/L	20	19.7	98	51-138	
Dibromochloromethane	ug/L	20	19.1	96	35-155	
Ethylbenzene	ug/L	20	20.3	102	37-162	
1,2-Dichloroethane-d4 (S)	%			95	79-123	
4-Bromofluorobenzene (S)	%			98	71-111	
Toluene-d8 (S)	%			100	77-116	

MATRIX SPIKE SAMPLE: 887532

Parameter	Units	92197241001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Acrylonitrile	ug/L	ND	200	193	97	60-146	H1
Chloroform	ug/L	ND	20	18.9	95	51-138	H1
Dibromochloromethane	ug/L	ND	20	18.9	94	35-155	H1
Ethylbenzene	ug/L	ND	20	19.3	96	37-162	H1
1,2-Dichloroethane-d4 (S)	%				100	79-123	
4-Bromofluorobenzene (S)	%				99	71-111	
Toluene-d8 (S)	%				99	77-116	

SAMPLE DUPLICATE: 887533

Parameter	Units	35134467001 Result	Dup Result	RPD	Qualifiers
Acrylonitrile	ug/L	5.0U	ND		
Chloroform	ug/L	7.4	7.3	2	
Dibromochloromethane	ug/L	0.25U	ND		
Ethylbenzene	ug/L	0.50U	ND		
1,2-Dichloroethane-d4 (S)	%	115	115	.1	

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: Virginia Farm  
Pace Project No.: 92197241

SAMPLE DUPLICATE: 887533

Parameter	Units	35134467001 Result	Dup Result	RPD	Qualifiers
4-Bromofluorobenzene (S)	%	95	98	3	
Toluene-d8 (S)	%	99	96	3	

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Virginia Farm  
Pace Project No.: 92197241

QC Batch: OEXT/16969	Analysis Method: EPA 625
QC Batch Method: EPA 625	Analysis Description: 625 MSS
Associated Lab Samples: 92197241001	

METHOD BLANK: 881527      Matrix: Water  
Associated Lab Samples: 92197241001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
bis(2-Ethylhexyl)phthalate	ug/L	ND	5.0	04/21/14 22:52	
Naphthalene	ug/L	ND	5.0	04/21/14 22:52	
2,4,6-Tribromophenol (S)	%	69	54.2-114.4	04/21/14 22:52	
2-Fluorobiphenyl (S)	%	62	35.3-102.4	04/21/14 22:52	
2-Fluorophenol (S)	%	28	16.3-59.8	04/21/14 22:52	
Nitrobenzene-d5 (S)	%	52	37.3-107.7	04/21/14 22:52	
Phenol-d6 (S)	%	22	10-47.1	04/21/14 22:52	
Terphenyl-d14 (S)	%	84	50.1-115.1	04/21/14 22:52	

LABORATORY CONTROL SAMPLE: 881528

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
bis(2-Ethylhexyl)phthalate	ug/L	50	40.0	80	10-158	
Naphthalene	ug/L	50	30.8	62	21-133	
2,4,6-Tribromophenol (S)	%			79	54.2-114.4	
2-Fluorobiphenyl (S)	%			64	35.3-102.4	
2-Fluorophenol (S)	%			32	16.3-59.8	
Nitrobenzene-d5 (S)	%			64	37.3-107.7	
Phenol-d6 (S)	%			22	10-47.1	
Terphenyl-d14 (S)	%			77	50.1-115.1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 881634      881635

Parameter	Units	35134379001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
bis(2-Ethylhexyl)phthalate	ug/L	0.87U	100	100	82.0	82.7	82	83	10-158	.9	
Naphthalene	ug/L	0.85U	100	100	64.6	61.4	65	61	21-133	5	
2,4,6-Tribromophenol (S)	%						83	77	54.2-114		
2-Fluorobiphenyl (S)	%						65	64	35.3-102		
2-Fluorophenol (S)	%						41	40	16.3-59.		
Nitrobenzene-d5 (S)	%						63	62	37.3-107		
Phenol-d6 (S)	%						34	32	10-47.1		
Terphenyl-d14 (S)	%						75	75	50.1-115		

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## QUALIFIERS

Project: Virginia Farm  
Pace Project No.: 92197241

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

### ANALYTE QUALIFIERS

H1 Analysis conducted outside the EPA method holding time.

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Virginia Farm  
Pace Project No.: 92197241

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92197241001	Flume	EPA 625	OEXT/16969	EPA 625	MSSV/6097
92197241001	Flume	EPA 624	MSV/11473		

## REPORT OF LABORATORY ANALYSIS

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# FIPRONIL

## TECHNICAL FACT SHEET

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CENTER  
1.800.858.7378

NPIC Technical Fact Sheets provide information that is complex and intended for individuals with a scientific background and/or familiarity with toxicology and risk assessment. This document is intended to promote informed decision-making. Please refer to the General Fact Sheet for less technical information.

### Chemical Class and Type:

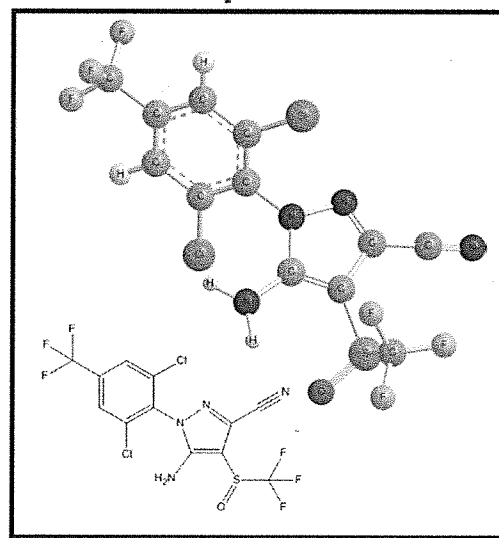
- Fipronil is a broad-spectrum phenylpyrazole insecticide. The International Union of Pure and Applied Chemistry (IUPAC) name for fipronil is (±)-5-amino-1-(2,6-dichloro- $\alpha,\alpha,\alpha$ -trifluoro-*p*-tolyl)-4-trifluoromethylsulfinylpyrazole-3-carbonitrile. The Chemical Abstracts Service (CAS) registry number is 120068-37-3.<sup>1</sup>
- Fipronil was first registered for use by the United States Environmental Protection Agency (U.S. EPA) in May 1996.<sup>2</sup> See the text box on **Laboratory Testing**.

**Laboratory Testing:** Before pesticides are registered by the U.S. EPA, they must undergo laboratory testing for short-term (acute) and long-term (chronic) health effects. Laboratory animals are purposely given high enough doses to cause toxic effects. These tests help scientists judge how these chemicals might affect humans, domestic animals, and wildlife in cases of overexposure.

### Physical / Chemical Properties:

- Technical grade fipronil is a white powder with a moldy odor.<sup>1,2</sup>
- Vapor pressure<sup>1,2</sup>:  $2.8 \times 10^{-9}$  mmHg at 25 °C
- Octanol-Water Partition Coefficient ( $K_{ow}$ )<sup>1,2</sup>:  $1.00 \times 10^4$
- Henry's constant<sup>1</sup>:  $3.7 \times 10^{-5}$  atm·m<sup>3</sup>/mol
- Molecular weight<sup>1</sup>: 437.2 g/mol
- Solubility (water)<sup>1</sup>: 0.0019 g/L (pH 5); 0.0024 g/L (pH 9) at 20 °C
- Soil Sorption Coefficient ( $K_{oc}$ )<sup>3</sup>: The average  $K_{oc}$  value for fipronil when tested in eight soil types was  $825 \pm 214$ , and the  $K_{oc}$  values for fipronil-sulfide and fipronil-desulfinyl were  $3946 \pm 2165$  and  $2010 \pm 1370$ , respectively.

### Molecular Structure - Fipronil



### Uses:

- Fipronil is used to control ants, beetles, cockroaches, fleas, ticks, termites, mole crickets, thrips, rootworms, weevils, and other insects.<sup>1,2,4</sup> Uses for individual fipronil products vary widely. Always read and follow the label when applying pesticide products.
- Fipronil is used in granular turf products, seed treatments, topical pet care products, gel baits, liquid termiticides, and in agriculture.<sup>4</sup>
- Signal words for products containing Fipronil may range from Caution to Warning. The signal word reflects the combined toxicity of the active ingredient and other ingredients in the product. See the pesticide label on the product and refer to the NPIC fact sheets on **Signal Words** and **Inert or "Other" Ingredients**.
- To find a list of products containing fipronil which are registered in your state, visit the website [http://npic.orst.edu/reg/state\\_agencies.html](http://npic.orst.edu/reg/state_agencies.html) and search by "active ingredient."



### Mode of Action:

#### Target and Non-target Organisms

- Fipronil is toxic to insects by contact or ingestion.<sup>1</sup>
- Fipronil blocks GABA<sub>A</sub>-gated chloride channels in the central nervous system. Disruption of the GABA<sub>A</sub> receptors by fipronil prevents the uptake of chloride ions resulting in excess neuronal stimulation and death of the target insect.<sup>5,6,7</sup>
- Fipronil exhibits differential binding affinity for GABA<sub>A</sub> receptor subunits, with a higher binding affinity for insect receptor complexes compared to mammalian complexes. The lower binding affinity for mammalian receptors enhances selectivity for insects and increases the margin of safety for people and animals.<sup>5,6,8,9</sup>
- Fipronil-sulfone, the primary biological metabolite of fipronil, is reported to be twenty times more active at mammalian chloride channels than at insect chloride channels.<sup>10</sup> Fipronil-sulfone is reportedly six times more potent in blocking vertebrate GABA-gated chloride channels than fipronil, but demonstrates similar toxicity to the parent compound in mammals.<sup>8</sup>
- Fipronil-desulfinyl, the primary environmental metabolite (photoproduct) of fipronil, is 9-10 times more active at the mammalian chloride channel than the parent compound, reducing the selectivity between insects and humans when exposed to this metabolite.<sup>8,11</sup>

**LD<sub>50</sub>/LC<sub>50</sub>:** A common measure of acute toxicity is the lethal dose (LD<sub>50</sub>) or lethal concentration (LC<sub>50</sub>) that causes death (resulting from a single or limited exposure) in 50 percent of the treated animals. LD<sub>50</sub> is generally expressed as the dose in milligrams (mg) of chemical per kilogram (kg) of body weight. LC<sub>50</sub> is often expressed as mg of chemical per volume (e.g., liter (L)) of medium (i.e., air or water) the organism is exposed to. Chemicals are considered highly toxic when the LD<sub>50</sub>/LC<sub>50</sub> is small and practically non-toxic when the value is large. However, the LD<sub>50</sub>/LC<sub>50</sub> does not reflect any effects from long-term exposure (i.e., cancer, birth defects or reproductive toxicity) that may occur at levels below those that cause death.

### Acute Toxicity:

#### Oral

- Technical grade fipronil is considered moderately toxic by ingestion with an oral LD<sub>50</sub> of 97 mg/kg in rats and an LD<sub>50</sub> of 95 mg/kg in mice.<sup>1</sup> See the text boxes on **Toxicity Classification** and **LD<sub>50</sub>/LC<sub>50</sub>**.
- Investigators fed rats a single dose of fipronil by gavage at a dose of 0, 2.5, 7.5, or 25.0 mg/kg. The lowest dose that produced adverse effects (LOAEL) was 7.5 mg/kg. At that dose, male rats displayed decreased hindlimb splay at 7 hours following administration. Researches also observed decreased body weight gain, decreased food consumption and food efficiency, and decreased grooming among female rats at 7 days after the single 7.5 mg/kg dose. All treatment-related effects resolved by 14 days following the single dose, except decreased grooming among female rats. The acute NOAEL for fipronil was 2.5 mg/kg.<sup>12</sup> See the text box on **NOAEL, NOEL, LOAEL, and LOEL** (page 4).
- The acute oral LD<sub>50</sub> of fipronil-desulfinyl (primary photodegradate) in rats is 15 and 18 mg/kg for females and males, respectively.<sup>13</sup>

#### Dermal

- Fipronil is low to moderate in toxicity by contact with a dermal LD<sub>50</sub> of >2,000 mg/kg in rats and 354 mg/kg in rabbits.<sup>2</sup>
- Researchers applied 15 doses of fipronil to the intact skin of rabbits at doses of 0.5, 1.0, 5.0, and 10.0 mg/kg/day for 6-hour periods over 21 days and observed "decreased mean body weight gain and food consumption" at the highest dose tested. The systemic NOAEL for fipronil was 5.0 mg/kg/day.<sup>12</sup>
- Fipronil may cause slight skin irritation. Fipronil was not found to be a skin sensitizer when tested on guinea pigs.<sup>2</sup>
- Fipronil may cause mild eye irritation that typically clears within 24 hours.<sup>2</sup>

# FIPRONIL

## TECHNICAL FACT SHEET

**npic**  
NATIONAL  
PESTICIDE • INFORMATION  
CENTER  
1.800.858.7378

- Fipronil degrades on soil surfaces by ultraviolet radiation (i.e., sunlight) to form fipronil-desulfinyl, and has a measured half-life of 34 days in loamy soil. However, soil particles may prevent light from penetrating any significant depth of soil under field conditions and thereby increase residence time.<sup>2,24</sup>
- In studies to determine the fate of fipronil in soil, researchers found “no evidence of volatility” of fipronil or fipronil metabolites.<sup>2</sup>
- Fipronil has low mobility in soil and is not expected to leach into groundwater. After soil treatment, fipronil usually does not travel further than the upper six inches of soil, and significant lateral movement is not expected.<sup>1,2,25</sup>
- The  $K_{oc}$  values for fipronil range from 427-1248 in sandy loam, but will vary depending on clay and organic carbon content of the soil. The  $K_{oc}$  is 3946 ( $\pm$  2165) for fipronil-sulfide and 2010 ( $\pm$  1370) for fipronil-desulfinyl.<sup>1,25</sup>

### Water

- Fipronil degrades rapidly in water when exposed to UV light to form fipronil-desulfinyl. Under these conditions, fipronil has a half-life of 4 to 12 hours.<sup>24,26</sup>
- Fipronil is stable to hydrolysis at pH 5 and pH 7. However, it degrades in alkaline conditions in direct proportion to increasing pH values. Fipronil-amide is the primary residue formed from hydrolysis.<sup>2,24,26</sup>
- Fipronil was measured in surface water at concentrations of 0.829 to 5.290  $\mu\text{g/L}$  in southwestern Louisiana during March through April, which corresponds to the timing of releases of ricefield tailwater. Results indicate that fipronil degradation products accumulate in riverbed sediment while the parent compound does not.<sup>27</sup>
- Fipronil-desulfinyl photodegrades in aerated and static water with recorded half-lives of 120 ( $\pm$  18) hours and 149 ( $\pm$  39) hours, respectively.<sup>26</sup>
- Fipronil and fipronil-desulfinyl are less volatile than water and can concentrate under field conditions.<sup>1,2</sup>

### Air

- The vapor pressure for fipronil is  $3.7 \times 10^{-4}$  mPa at 25 °C.<sup>1</sup> Photodegradation studies in soil found no evidence of volatility of fipronil or its metabolites.<sup>2</sup>

### Plants

- Fipronil is not well absorbed by plants after soil treatment (about 5%) and partially degrades in plants to the sulfone and amide derivatives. Fipronil applied to foliage partially photodegrades to form fipronil-desulfinyl.<sup>1</sup>

### Indoor

- No indoor fate data were found.

### Food Residue

- The United States Food and Drug Administration (FDA) Pesticide Residue Monitoring Program conducts regulatory and incidence/level monitoring for pesticide residues in domestic and imported foods (except meat, poultry, dairy, and eggs). In 2003, the FDA analyzed 84 domestic samples (3.6% of domestic samples) for levels of fipronil for tolerance compliance. No samples contained detectable levels of fipronil.<sup>28</sup>
- In 2003, the FDA analyzed more than 150 imported food samples for levels of fipronil. Two samples had residues of fipronil that exceeded the legal limit (tolerance).<sup>28</sup>
- The United States Department of Agriculture (USDA) conducts regulatory monitoring for pesticide residues in meat, poultry, dairy, and eggs. In 2006, the USDA analyzed 655 poultry breast samples and 655 poultry thigh samples for levels of fipronil. One poultry breast (0.2%) and 2 poultry thighs (0.3%) had detectable levels of fipronil. No samples contained residues that exceeded the established U.S. EPA tolerances.<sup>29</sup>

## ATTACHMENT 5

### PERMIT PROCESSING CHANGE SHEETS

#### TABLES IIIA & IIIB

TABLE IIIa  
ATTACHMENT 4  
VPA PERMIT PROGRAM  
Permit Processing Change Sheet

(List any changes made from the last permit and give a brief rationale for the change)

**(Issuance, but changes from previous owner's permit are summarized)**

MONITORING REQUIREMENTS CHANGED						
Monitoring Location	Monitoring Type	Parameters Changed	From	To	Rationale	Date & Initials
Storage tank prior to applic	Industrial washwater	Calcium, Magnesium, Na, SAR, EC	required	deleted	These parameters are not a concern for produce washed in well water with no additives (no sodium hypochlorite as disinfectant)	07/10/14 RES
Storage tank prior to applic	Industrial washwater	n/a	Reports required monthly	Mo. reports not required during off season Nov.-April*	If there has been no activity at the facility or the fields during any one of the stated off season months*, a monthly report is not required to be submitted. Annual report is due in January; BPJ.	07/10/14 RES
Storage tank prior to applic	Industrial washwater	TDS	N/A	Added	Indicator parameter to replace EC- Guidance Memo No. 93-023: Procedures For Processing VPA Permits For The Food Processing Category & BPJ.	07/10/14 RES
Wells 1 & 2	Ground water	sodium	required	deleted	This parameter is not a GW concern for produce washed in well water with no additives (no sodium hypochlorite as disinfectant)	07/10/14 RES
Spray Fields	Soils	CEC, Ex. Na., ESP	required	deleted	These parameters are not a concern for produce washed in well water with no additives (no sodium hypochlorite solution as disinfectant)	07/10/14 RES

Other Changes (special conditions):

FROM:	RATIONALE:	
Sodium & Chlorine Balance condition <del>deleted</del>		This condition is not applicable for produce washed in well water with no additives (no sodium hypochlorite solution as disinfectant)
Wastewater characterization & Site Life/Balance Calculations condition <b>added</b>		This condition is required when data was not available to complete sections of the VPA application
		07/10/14 RES
		07/10/14 RES

TABLE IIIb  
**ATTACHMENT 5**  
 VPA PERMIT PROGRAM  
 Permit Processing Change Sheet  
 (List any changes made during the permit process and give a brief rationale for the change)

*Not applicable*

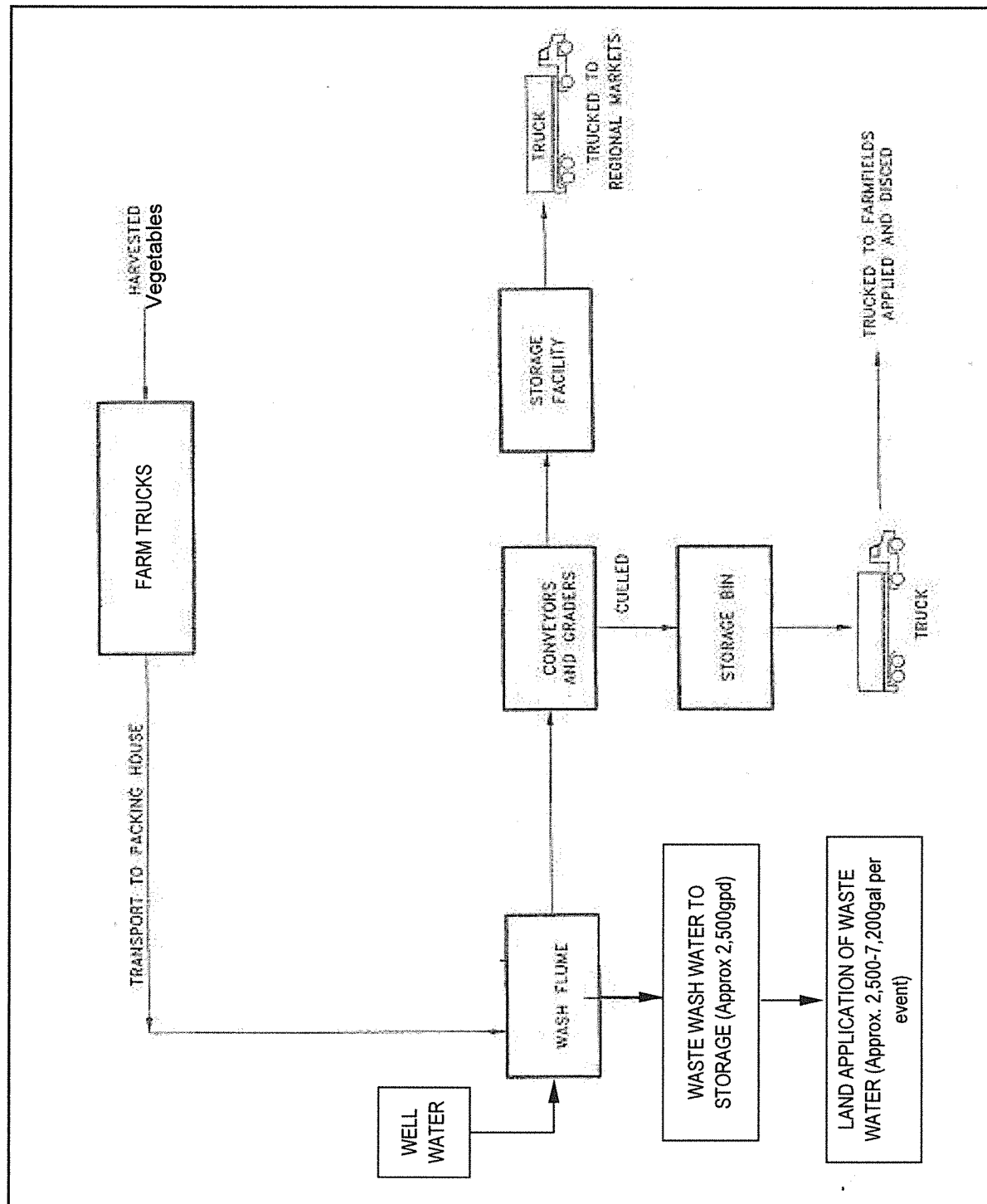
MONITORING REQUIREMENTS CHANGED						Date & Initials
Monitoring	Monitoring Type	Parameter Changed	From	To	Rationale	
						RES 2/21/12


2. Other Changes:

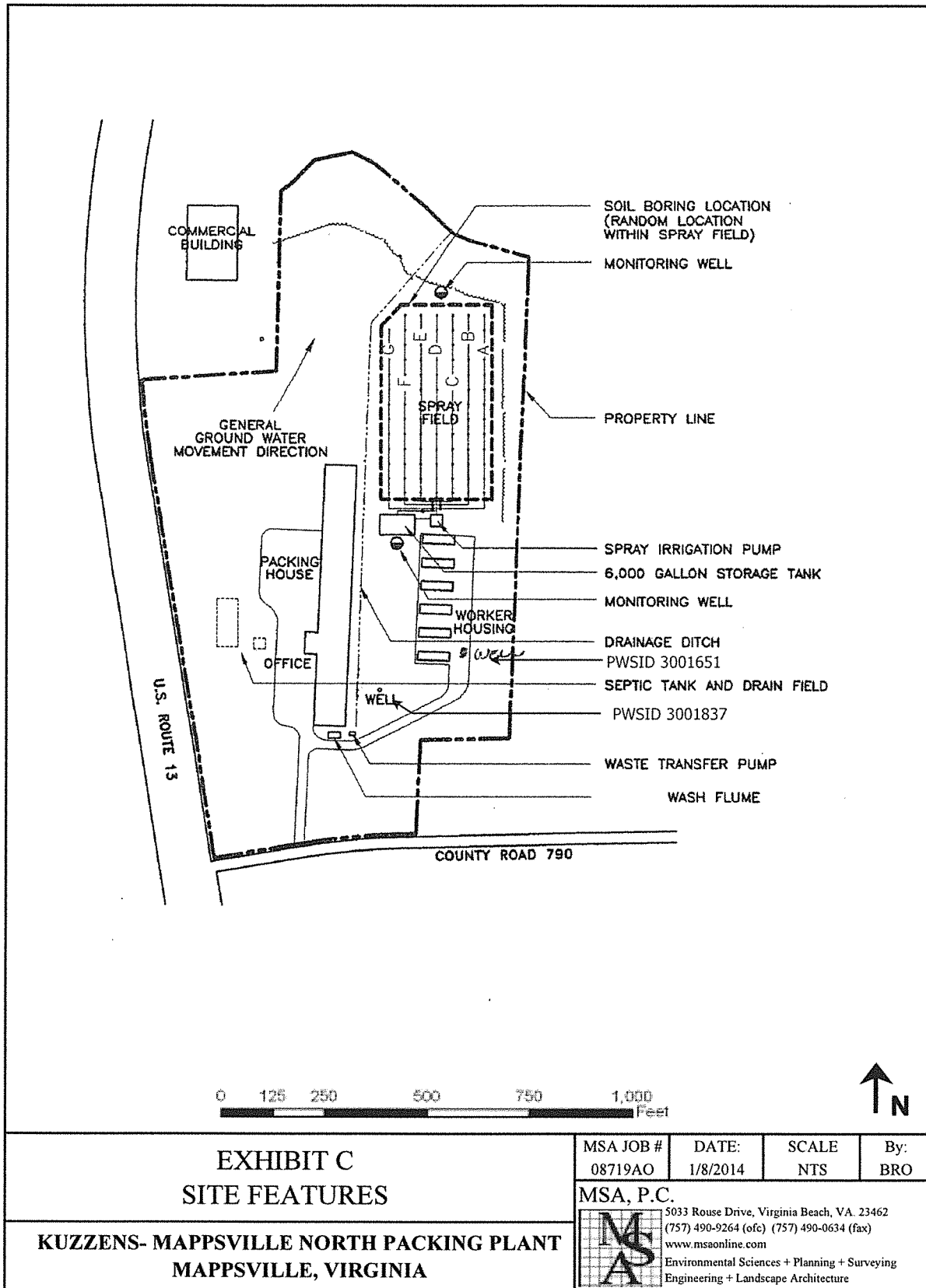
FROM:	TO:

## ATTACHMENT 6

### SITE MAPS/WATER BALANCE



<b>EXHIBIT B</b> <b>FACILITY SCHEMATIC</b> <b>KUZZENS- MAPPSVILLE NORTH PACKING PLANT</b> <b>MAPPSVILLE, VIRGINIA</b>	MSA JOB #	DATE:	SCALE	By:
	08719AO	1/8/2014	NTS	MME
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**EXHIBIT C  
SITE FEATURES**

**KUZZENS- MAPPSVILLE NORTH PACKING PLANT  
MAPPSVILLE, VIRGINIA**

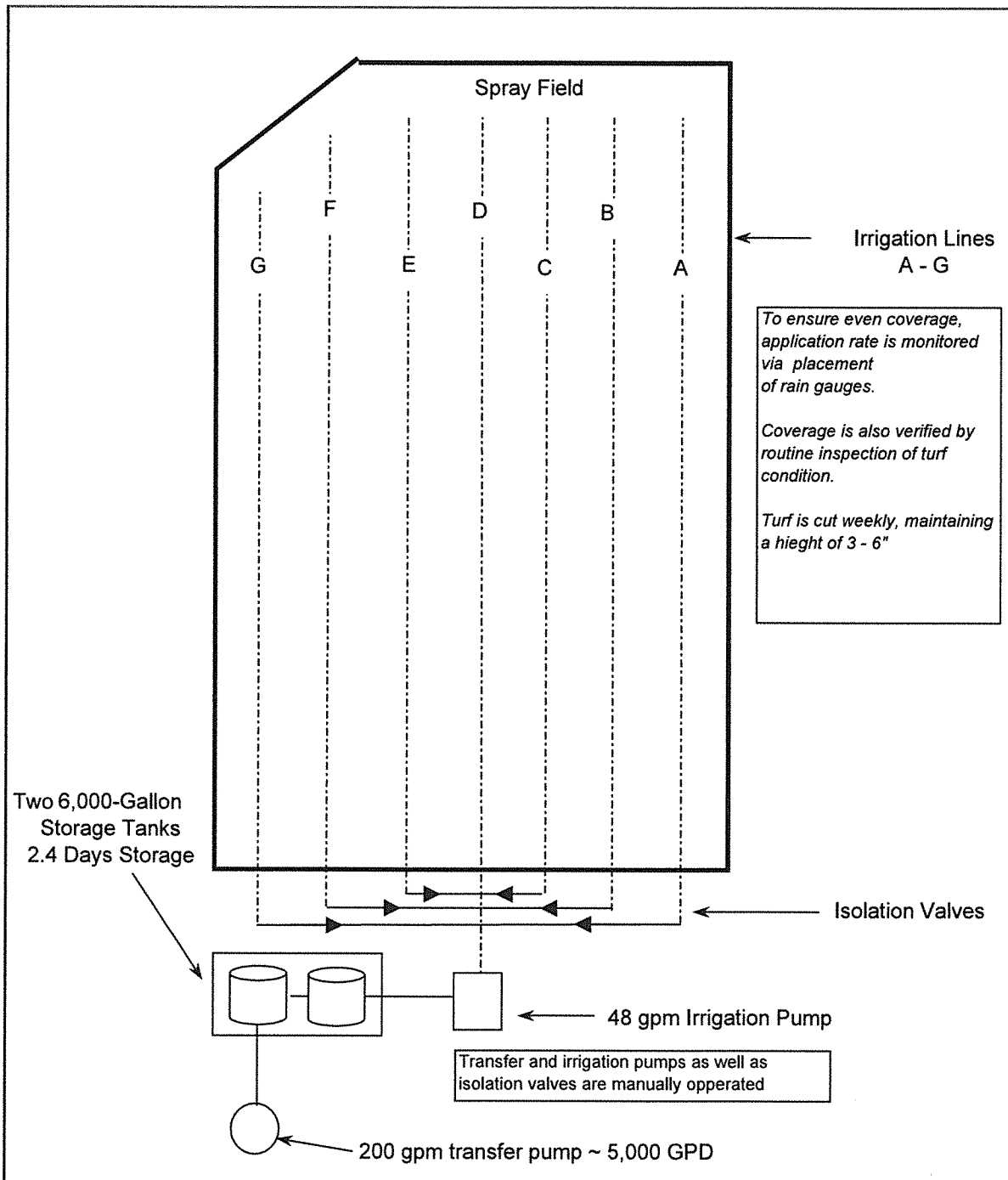
MSA JOB #	DATE:	SCALE	By:
08719AO	1/8/2014	NTS	BRO

**MSA, P.C.**



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<p><b>EXHIBIT D</b></p> <p><b>LAND APPLICATION METHODS</b></p> <p><b>KUZZENS- MAPPSVILLE NORTH PACKING PLANT</b></p> <p><b>MAPPSVILLE, VIRGINIA</b></p>	MSA JOB #	DATE:	SCALE	By:
	08719AO	1/8/2014	NTS	JAD
<p>MSA, P.C.</p> <p>5033 Rouse Drive, Virginia Beach, VA. 23462</p> <p>(757) 490-9264 (ofc) (757) 490-0634 (fax)</p> <p>www.msaonline.com</p> <p>Environmental Sciences + Planning + Surveying</p> <p>Engineering + Landscape Architecture</p>				

**VPA 01044**

Available land 3.39  
2009 total Flow 0.22

To be updated by 50  
MSA based  
on updated  
evap. data

**HYDROLIC LOADING**

2009 Weather Data  
from wunderground.com

		JUL	AUG	SEP
P	in/month	8.82	7.14	7.36
ET	in/month	5.87	5.9	2.36
Net P	in/month	2.95	1.24	5
Perc *	in/month	17.850	17.850	17.280
Max Application	in/week	0.380	0.390	0.390
	in/day	0.008	0.007	0.006
Allowable loading	in/month	19.786	18.406	17.690
Actual max loading	in/week	0.380	0.390	0.390
Estimated Max Flow			5000 35000 4679.01 1.29	GPD gal / week cf / week in / week
Permit			2	in / week
Required land based on hydrolic loading			0.64	Acres

\* 0.6 in/hr.

POTENTIAL EVAPOTRANSPIRATION CALCULATIONS  
[Thornthwaite, 1948]

Month	Air Temp (Avg °C/Day)	Sunshine Factor [b]	P.E.T. (cm)
JAN	2	0.86	0.19
FEB	4	0.84	0.56
MAR	10	1.03	2.96
APR	13	1.1	4.80
MAY	16	1.22	7.42
JUN	23	1.23	13.35
JUL	24.4	1.25	14.91
AUG	25.5	1.17	14.97
SEP	15.5	1.035	5.98
OCT	22	0.965	9.76
NOV	14	0.85	4.18
DEC	12	0.83	3.19
Annual Potential Evapotranspiration =			82.26

Heat Index (by month)
0.25
0.71
2.85
4.23
5.79
10.02
10.95
11.71
5.52
9.37
4.73
3.75

69.89 = ANNUAL HEAT INDEX

PET = 1.62b [10T/I]<sup>a</sup>

- b = sunshine factor [mean possible hours of bright sunlight (30days/12hrs)]
- T = mean monthly air temperature (°C)
- I = annual Heat Index
- a = empirical coefficient

Air Temp = Average daily temperature at Melfa, Virginia over the last 9 years.

cm to inch ocnversion (X/2.54)
JUL 5.87
AUG 5.90
SEP 2.36
Total 14.12

To be updated 51

## EVAPOTRANSPIRATION

The combined water losses from evaporation and vegetative transpiration are termed evapotranspiration (ET). Evaporation is relatively easy to measure using evaporative pan data, however transpiration is difficult to quantify without direct field measurements. Actual ET losses from a site are most readily estimated through calculation. The thickness (relative depth) of soil water loss through ET can, however, be empirically determined. When this thickness is multiplied by an area, a volume of water loss may be calculated.

Thornthwaith (1948) developed a relationship for monthly potential evapotranspiration (PET) based on an a heat index and empirical coefficients for available sunshine and crop transpiration. Braas (1990) simplified the equation to:

$$PET = 1.62b \times [10T/I]^a$$

where,  $b$  is an adjustment factor for daily available sunshine,  $T$  is the mean monthly temperature ( $^{\circ}\text{C}$ ),  $I$  is the annual heat index, and  $a$  is a relative parameter based on  $I$ .

The Thornthwaite approach assumes that the soil water available for ET is not limited. Therefore, this calculation yields potential evapotranspiration (PET) which is an estimation of a maximum thickness of soil water loss.

Results of the PET calculations estimate the monthly relative thickness of water loss. These monthly thicknesses were multiplied by the area of the YYYYYY (Z.ZZ ac,ft) and the resultant volumes added together to calculate the approximate annual volume of its' evapotranspirative losses. The total estimated annual volume of water loss through PET at YYYYYYY YYYYYYY is ZZ.ZZ gal/ft. A data listing and monthly breakdown of PET quantities is provided  
\*\*\*\*\*.

Braas, R.L., 1990. Hydrology: an introduction to hydrologic science. New York: Addison-Wesley Publishing Company.  
pp 224-225.

Thornthwaite, C.W., 1948. An approach toward a rational classification of climate. *Am. Geogr. Rev.* 38:55-94

special condition requires <sup>53</sup>  
update

## VPA 01044

Available land 3.39  
2009 total Flow 0.22 MG

### Nitrogen Balance

	Results	as mg/L	Flow	as Liters	Loading	
NH3	36.10	0.0361	220,000	832790.59	30.06	
TKN	70.5	0.0705	220,000	832790.59	58.71	
NO3	2.5	0.0025	220,000	832790.59	2.08	
NO2	0.01	0.0000	220,000	832790.59	0.01	
Total N Applied				sum of balance	90.87	
20% N loss through denitrification				sum X .2	18.17	
Available N				Total - loss	72.69	
Uptake for Fescue				ncsu pub	135.00	
Acres Required				available / uptake	0.54	Acers

Given application rates for N are well below the uptake potential of the cover crop  
leaching was not discussed.

### Phosphorus Balance

	Results	as mg/L	Flow	as Liters	Loading	
P	7.20	0.0072	220,000	832790.59	6.00	
Uptake for Fescue				ncsu pub	65.00	
Acres Required				available / uptake	0.09	Acers

Given application rates for P are well below the uptake potential of the cover crop  
leaching was not discussed.

### Potassium Balance

	Results	as mg/L	Flow	as Liters	Loading	
K	76.20	0.0762	220,000	832790.59	63.46	
Uptake for Fescue				ncsu pub	185.00	
Acres Required				available / uptake	0.34	Acers

**Sulfur Balance**

	as mg/L	Flow	Load	
Sulfate	254	500,000	1059.00	lb/year
Sulfur content			353.00	lb/year
Uptake for Fescue			102	lbs
<b>Residual</b>			<b>251</b>	<b>lbs</b>
Sulfate available for leaching			786	lb/year
Precipitation			42.69	in/year
Evapotranspiration			31.6	in/year
Excess Precipitation			11.09	in/year
over 3.39 Acres			1.021	MG/year
wastewater applied			0.5	MG/year
Total			1.521	MG/year
<b>Concentration of sulfate in leachate</b>			<b>61.92</b>	<b>mg/L</b>

Sulfur was not tested for due to facility inactivity. Data and calculations as prepared by Cabe Associates for the 2002 VPA Application are presented as a reference.

**Salt Balance**

	Results	as mg/L	Flow	as Liters	Loading	mmol
Na	321.25	0.3213	220,000	832790.59	267.53	11.6319
Ca	83.4	0.0834	220,000	832790.59	69.45	3.47274
Mg	12.92	0.0129	220,000	832790.59	10.76	0.89664
SAR	$(Na/23)/(SQRT(0.5 \times ((Ca/20)+(Mg/12))))$				<b>9.32</b>	

**Carbon / Nitrogen Balance**

TOC	245.5		
TKN	27.1		
C/N ratio		TOC / TKN	<b>9.06</b>

Note: The facility has been inactive since 2009. Given that the spray field have been idle the carbon / nitrogen balance would not be indicative of an active field therefore data from the 2002 application has been submitted.

55  
special condition requires  
update

## LAND REQUIREMENTS FOR METALS

<b>Copper</b>	mg/L 0.64	mg/Gal 2.4224	lb/Gal 5.34139E-06	Flow 220000	Mass Applied 1.17510624	lb/Acre 0.35	
	Cumulative Limt (lb/acre)				permit	125	
	Land Needed				loading / limit	0.009	
	Site Life				lb/Acre/permit	361	Years
<b>Zinc</b>	mg/L 0.34	mg/Gal 1.2869	lb/Gal 2.83761E-06	Flow 220000	Mass Applied 0.62427519	lb/Acre 0.18	
	Cumulative Limt (lb/acre)				permit	250	
	Land Needed				loading / limit	0.002	
	Site Life				lb/Acre/permit	1358	Years
<b>Nickle *</b>	mg/L 0.01	mg/Gal 0.03785	lb/Gal 8.34593E-08	Flow 500000	Mass Applied 0.041729625	lb/Acre 0.01	
	Cumulative Limt (lb/acre)				permit	125	
	Land Needed				loading / limit	0.000	
	Site Life				lb/Acre/permit	10155	Years
<b>Lead *</b>	mg/L 0.01	mg/Gal 0.03785	lb/Gal 8.34593E-08	Flow 500000	Mass Applied 0.041729625	lb/Acre 0.01	
	Cumulative Limt (lb/acre)				permit	1000	
	Land Needed				loading / limit	0.000	
	Site Life				lb/Acre/permit	81237	Years
<b>Cadmium *</b>	mg/L 0.0025	mg/Gal 0.0094625	lb/Gal 2.08648E-08	Flow 500000	Mass Applied 0.010432406	lb/Acre 0.00	
	Cumulative Limt (lb/acre)				permit	8.9	
	Land Needed				loading / limit	0.001	
	Site Life				lb/Acre/permit	2892	Years

\* Ni, Pb and Cd were not analysed during routine monitoring therefore historic data was utilized. These elements are not anticipated in the waste stream. Data from the 2002 application renewal and a total flow of 500,000 gallons was utilized for these calculations.

**Aresnic \*\*** < 5 ug/L (not a land limiting parameter)

**Boron \*\*** 0.39 mg/L (not a land limiting parameter)

\*\* Arsenic and Boron were not analysed during routine monitoring therefore historic data was utilized. These elements are not anticipated in the waste stream.

## ATTACHMENT 7

### CHRONOLOGY SHEET



## VPA PERMIT PROGRAM

Permit VPA01082

## CHRONOLOGY OF EVENTS

APPLICATION RECEIVED	APPLICATION RETURNED	ADDITIONAL INFO REQUESTED	APPLICATION/ADD INFO DUE BACK IN RO	APPLICATION/ADD. INFO RECEIVED
02/26/14	03/05/14	03/05/14	03/27/14	03/25/14; 04/30/14; 06/13/14 (NMP rec)
APPLICATION TO VDH: 06/11/14 VDH COMMENTS RECEIVED: 06/17/14				
APPLICATION TO OWPS: OWPS COMMENTS RECEIVED:				
APPLICATION ADMIN. COMPLETE: 06/13/14 APPLICATION TECH. COMPLETE: 06/13/14				
DATE FORWARDED TO ADMIN:				

Date DESCRIPTIVE STATEMENT [CHRONOLOGY OF EVENTS] (Meetings, telephone calls, letters, memos, hearings, etc. affecting permit from application to issuance)

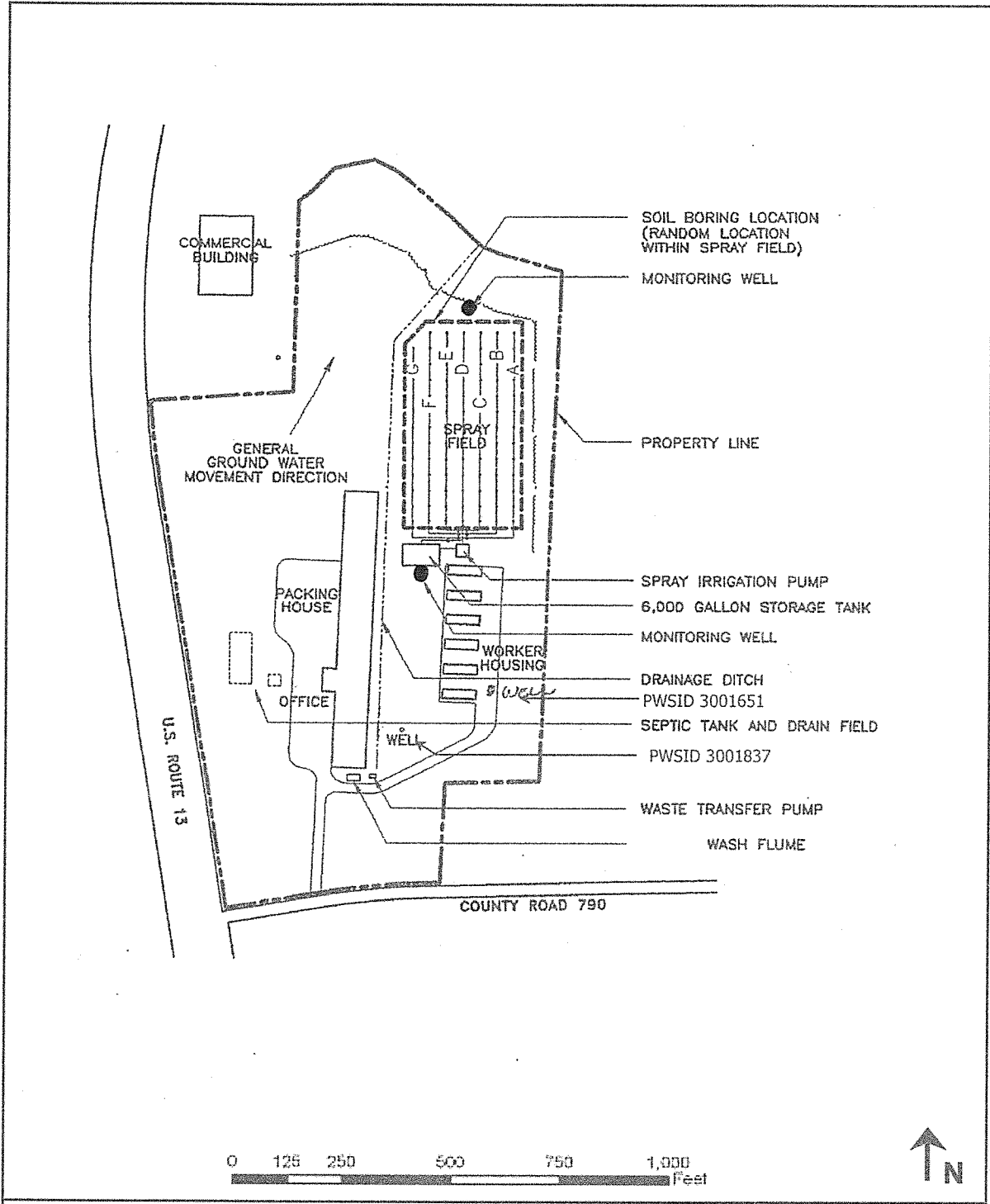
02/26/14	Incomplete application received
03/05/14	Application returned
04/30/14	Revised application received 03/25/14; data received 04/30/14
06/13/14	NMP received along with clarifications to the application; revised application completed
06/11/14	Revised application sent to State Agencies for comment (minus NMP)
06/17/14	Application complete letter sent to consultant
06/19/14	Fact sheet and Draft permit completed
06/17/14	VDH Comments received
07/10/14	Request for cull field land ownership agreement forms
07/10/14	Finalized fact sheet and permit
07/14/14	Sent DP/FS for review Sent reminder to DSS whether they have comments
10/29/14	Revised application with land owner agreement forms received
11/20/14	Third and final Reminder to DSS for their comments
11/20/14	Finalized DP/FS based on revised application received 10/29/14 - sent to TA for review
1/6/15	RECEIVED COMMENTS FROM TA - CORRECTIONS MADE
1/8/15	SENT TO OWNER - COPIED CONSULTANT - ALSO SENT TO CA FOR COMMENTS


## ATTACHMENT 8

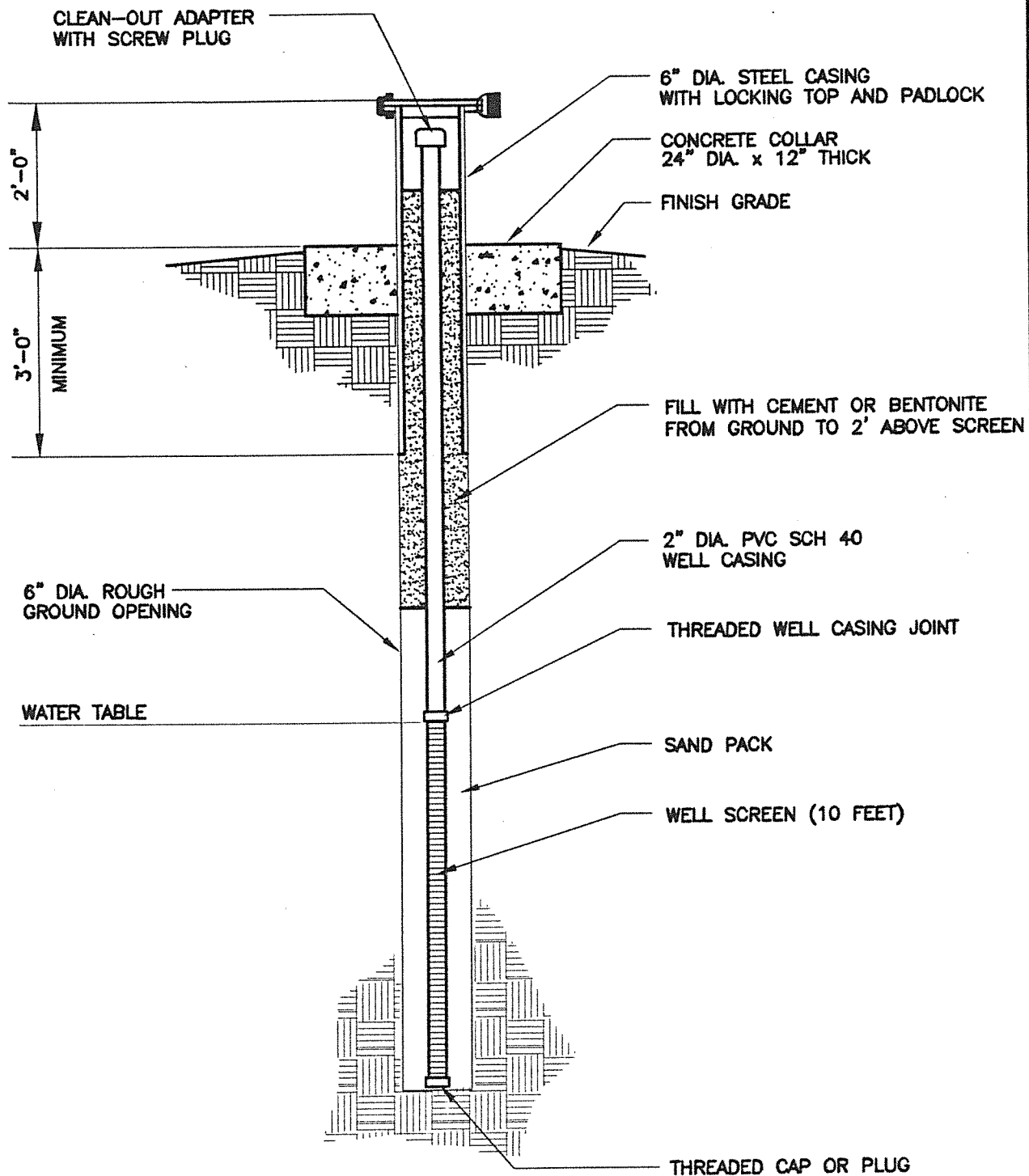
GW MONITORING WELL LOCATIONS

SOILS MAPS

SOILS PRODUCTIVITY (CLASS III)



<p><b>EXHIBIT C</b> <b>SITE FEATURES</b></p>		MSA JOB #	DATE:	SCALE	By:
		08719AO	1/8/2014	NTS	BRO
<p><b>KUZZENS- MAPPSVILLE NORTH PACKING PLANT</b> <b>MAPPSVILLE, VIRGINIA</b></p>		MSA, P.C.			
		 <p>5033 Rouse Drive, Virginia Beach, VA. 23462 (757) 490-9264 (ofc) (757) 490-0634 (fax) www.msaonline.com Environmental Sciences + Planning + Surveying Engineering + Landscape Architecture</p>			



256-003  
DECEMBER 2001  
256A

GROUND WATER MONITORING WELL DETAIL  
TAYLOR AND FULTON, INC.  
MAPPSVILLE, VIRGINIA

EXHIBIT  
4 A



Note: This entire area is shown as in Flood Zone X on FEMA Flood Map 51001C0475F



## EXHIBIT E SOIL TYPES

**KUZZENS- MAPPSVILLE NORTH PACKING PLANT  
MAPPSVILLE, VIRGINIA**

MSA JOB # 08719AO	DATE: 1/8/2014	SCALE NTS	By: BRO
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**MSA, P.C.**











































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65



## MAP LEGEND

	Area of Interest (AOI)		Soil Map Unit Polygons		Soil Map Unit Lines		Soil Map Unit Points		Special Point Features		Blowout		Borrow Pit		Clay Spot		Closed Depression		Gravel Pit		Gravelly Spot		Landfill		Lava Flow		Marsh or swamp		Mine or Quarry		Miscellaneous Water		Perennial Water		Rock Outcrop		Saline Spot		Sandy Spot		Severely Eroded Spot		Sinkhole		Slide or Slip		Sodic Spot
	Soils		Area of Interest (AOI)		Soil Map Unit Polygons		Soil Map Unit Lines		Soil Map Unit Points		Special Point Features		Water Features		Streams and Canals		Transportation		Rails		Interstate Highways		US Routes		Major Roads		Local Roads		Background		Aerial Photography																

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Accomack County, Virginia  
Survey Area Data: Version 11, Dec 11, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 17, 2010—Jul 4, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

*fields*

## Map Unit Legend

Accomack County, Virginia (VA001)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BhB	Bojac loamy sand, 2 to 6 percent slopes	9.0	9.0%
BkA	Bojac sandy loam, 0 to 2 percent slopes	68.3	68.0%
DrA	Dragston fine sandy loam, 0 to 2 percent slopes	9.5	9.5%
MuA	Munden sandy loam, 0 to 2 percent slopes	13.6	13.6%
<b>Totals for Area of Interest</b>		<b>100.5</b>	<b>100.0%</b>



Report Number: 14-073-0507

Account Number: 06105



www.aalestern.com

# A&L Eastern Laboratories

7621 Whitepine Road Richmond, Virginia 23237 (804) 743-9401 Fax (804) 271-6446

Send To: MSA, PC

CHARLES HALL

5033 ROUSE DR

VIRGINIA BEACH VA 23462

Grower:

MAPPSVILLE NORTH - PACKING

KUZZENS INC

08719A0

Submitted By: CHARLES HALL

Farm ID: WW SPRAY

## SOIL ANALYSIS REPORT

Analytical Method(s):

Mehlich 3

Date Received: 03/14/2014

Date Of Analysis: 03/17/2014

Date Of Report: 03/21/2014

Sample ID Field ID	Lab Number	Organic Matter		Phosphorus		Potassium		Magnesium		Calcium		Sodium		pH		Acidity H meq/100g	C.E.C meq/100g
		%	Rate lbs/A	Mehlich 3 ppm	Reserve ppm	Rate ppm	K ppm	Rate ppm	Mg ppm	Rate ppm	Ca ppm	Rate ppm	Na ppm	Rate ppm	Soil pH		
BKA	01878	1.6	L 76	160	VH		117	VH 77	H 576	M 576		15	VL	6.5		0.3	4.2
BHB	01879	1.9	L 82	88	H		82	M 84	H 557	M 557		16	VL	6.2		0.5	4.3

Sample ID Field ID	Percent Base Saturation				Nitrate		Sulfur		Zinc		Manganese		Iron		Copper		Boron		Soluble Salts		Chloride		Aluminum	
	K %	Mg %	Ca %	Na %	H %	NO <sub>3</sub> N ppm	Rate ppm	S ppm	Rate ppm	Zn ppm	Rate ppm	Mn ppm	Rate ppm	Fe ppm	Rate ppm	Cu ppm	Rate ppm	B ppm	Rate ppm	SS ms/cm	Rate ppm	Cl ppm	Rate ppm	Al ppm
BKA	7.1	15.3	68.6	1.6	7.4		1																	
BHB	4.9	16.3	64.8	1.6	12.1		1																	

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.  
Analysis prepared by: A&L Eastern Laboratories, Inc.

by:

Pauric McGroary

Pauric McGroary

## NUTRIENT MANAGEMENT PLAN IDENTIFICATION

### Operator

Campbell Farms-Virginia LLP  
12201 Lankford Highway  
Hallwood, VA 23359

### Watershed Summary

watershed: CB38  
county: Accomack

### Nutrient Management Planner

Todd Keen  
Keen Consulting, Inc.  
26229 Prettyman Road  
Georgetown, DE 19947

Certification Code: 352

### Acreage Use Summary

Total Acreage in this plan: 141.1

Cropland: 0.  
Hayland: 4.2  
Pasture: 0.  
Specialty: 136.9

Other 0

### Manure Production Balance

	Imported	Produced	Exported	Used	Net
kgals	0.	0.	0.	84.	-84.
tons	0.	0.	0.	40.3	-40.3

Plan written 5/1/2014  
Valid until 5/1/2017

Signature:



Todd A. Keen

6/12/2014  
Date

### **Campbell Farms-Virginia LLP Narrative**

Campbell Farms- Virginia LLP is operating a potato growing, grading and packing facility. This NMP is written as part of a VPA permit for the use/disposal of wastewater and potato culls resulting from these activities.

Wastewater volume is projected to be 1,500 gals/day for a period of approximately 50 days starting in mid to late June and ending in mid August of each year. This would amount to an annual wastewater production of approximately 75,000 gallons. For planning purposes 2,000 gals/day was utilized to allow for production variations.

During this period culled potatoes will be land applied as a crop nutrient source for crop production purposes.

## Nutrient Management Plan Special Conditions for Nutrient Management Plans Developed for Biosolids Applications October 2011

The following management practices will be utilized for operations using biosolids:

1. Soil samples for biosolids application fields will be analyzed at least once every three (3) years for pH, phosphorus, potassium, calcium, and magnesium in order to maximize the efficient utilization of nutrients. A representative soil sample of each field representing an area up to approximately twenty acres will be comprised of cores randomly sampled throughout the field. Soil sampling core depth will be from 0 – 4 inches for land that has not been tilled within the past three years, or 0 – 6 inches for land that has been tilled within the past three years. Soil pH will be maintained at appropriate agronomic levels to promote optimum crop growth and nutrient utilization.
2. When soil pH is not the limiting factor for biosolids application rates, preferred application rates for alkaline stabilized biosolids shall be restricted in accordance with a lime requirements test determined by commercial or state soil testing laboratories, listed in # 3 below; or calcium carbonate equivalent loadings shall not exceed rates expected to attain soil pH values in the plow layer above 6.5 for fields located in the coastal plain and above 6.8 for fields located outside the coastal plain area of Virginia; whichever is most restrictive.
3. Soil test analysis will be performed by one of the laboratories listed below. Soil phosphorus levels must be determined using the Mehlich I or Mehlich III procedure.
 

<ul style="list-style-type: none"> <li>• A &amp; L Agricultural Labs, Richmond</li> <li>• Brookside Laboratories</li> <li>• Spectrum Analytical Laboratories</li> <li>• AgroLab, Inc</li> <li>• Midwest Laboratories, Inc</li> </ul>	<ul style="list-style-type: none"> <li>• Virginia Tech Soil Testing Lab</li> <li>• Waters Agricultural Laboratories</li> <li>• Agri-Analysis Testing Laboratory               <ul style="list-style-type: none"> <li>• Logan Labs, LLC</li> </ul> </li> </ul>
--	---
4. Biosolids sampling procedures shall follow acceptable protocol for obtaining representative samples and ensuring their quality and integrity. Refer to the Environmental Protection Agency's 1989 *POTW Sludge Sampling and Analysis Guidance Manual* for detailed information regarding biosolids sampling procedures. The actual biosolids application rates shall be based on the annual average biosolids analysis. The average biosolids quality shall be established from the results of approved analytical testing of composite samples obtained during the most recent 12 months of monitoring. For proposed treatment works, rates may be initially based on the biosolids characteristic produced by similar generating facilities. At a minimum, representative biosolids samples will be analyzed at the frequency and for the parameters specified in the VPA or VPDES Permit: These include but are not limited to total nitrogen or total Kjeldahl nitrogen, ammonia-nitrogen, total phosphorus, total potassium, calcium carbonate equivalency, and percent solids. Biosolids analysis results will be used to determine actual

application rates that do not exceed the nitrogen, phosphorus and lime application rates specified in the nutrient management plan.

5. All crops will be planted and harvested in a timely manner using commercially acceptable management practices.
6. Make biosolids applications at or near planting or to existing actively growing crops to assure that nutrients are properly utilized. Utilize Section 4 VAC 5-15-150.A.4 of the Nutrient Management Training and Certification Regulations to determine appropriate biosolids application times and Virginia Nutrient Management Standards and Criteria, revised October 2005 and applicable DCR Guidance documents to determine rates. If additional commercial fertilizer applications (especially nitrogen) are needed they should be made as a split application separate from the biosolids application, either as a sidedress or topdress application.
8. For permanent hay or pasture, an adequate stand of hay and/or pasture crop species will be established prior to land application of biosolids, unless biosolids can be land applied to meet nutrient recommendations for hay establishment. Commercially acceptable stands of the listed species will be maintained and other weeds and grasses controlled. All hay crops will be harvested in a timely and regular manner, removed from fields, and utilized for a suitable purpose.
9. A hay field is one in which a hay crop is mechanically harvested 2 or more times per year, and the harvested crop is removed from the field. For tall grass hay fields, biosolids applications shall be made using the expected number of cuttings to determine total nitrogen rate. For hay crop nutrient recommendations refer to DCR Standards and Criteria. If only one cutting of hay is made per year, refer to DCR Guidance for Crop Nutrient Recommendations for Hay/Pasture Fields (NMP-1).
10. A hay/pasture field is one in which a hay crop is mechanically harvested and the harvested crop is removed from the field and utilized for a suitable purpose. Once the hay crop has been removed, pasturing of livestock at the recommended stocking rate for the predominant soil productivity group occurs for the remainder of the season. For hay/pasture crop nutrient recommendations, refer to DCR guidance document NMP-1.
11. Pasture and hay fields should be grazed or clipped to a height of approximately four and six inches, respectively, prior to biosolids application unless the biosolids can be uniformly applied so as not to mat down the vegetative cover so that the site vegetation can be clipped to a height of approximately four inches within one week of the biosolids application. If application methods do not result in a uniform distribution of biosolids, additional operational methods shall be employed following application such as dragging with a pasture harrow, followed by clipping if required, to achieve a uniform distribution of the applied biosolids.
12. A trap crop is a timely planted cereal grain for capturing residual soil nitrogen through the fall and winter months. Biosolids applications shall not occur before the trap crop reaches Zadok's growth stage 23 (one main shoot and 3 tillers) or greater

AND having a uniform stand throughout the entire area to be spread of at least 20 plants per square foot on sites that are not environmentally sensitive. Biosolids applications to a trap crop shall be within 60 days of planting a spring planted crop on sites identified as environmental sensitive. For nutrient recommendations refer to Virginia Nutrient Management Standards and Criteria, revised 2005

13. Biosolids Spreading Schedule.

BIOSOLIDS SPREADING SCHEDULE

CROP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Alfalfa												
Bermuda Grass									15th			
Corn		20th		20th		20th						
Soybeans					20th							
Hay*												
Pasture*												
Sorghum/Millet					15th		20th					
Small Grain			15th									

Note Late fall and winter biosolids applications may be made to a trap crop only if applications are in accordance with 4VAC5-15.  
\* Cool season grasses only, Fescue and or Orchardgrass

Spread liquid or dewatered biosolids at the rates and times specified in the nutrient management plan.

Do not spread liquid or dewatered biosolids during these shaded time periods.

Applications during these time periods shall comply with the following:

- Biosolids applications will not be made earlier than 30 days prior to planting on environmentally sensitive sites.
- On fields listed as not environmentally sensitive:
  - Applications of dewatered anaerobically digested or dewatered lime stabilized biosolids will not occur more than 90 days prior to spring planting on fields having (i) slopes less than 7% throughout the application area or (ii) having at least 60% uniform ground cover from crop residue.
  - Liquid biosolids applications will not occur more than 60 days prior to spring planting.

Biosolids applications should be avoided whenever possible during this period (late fall-winter). Fields must have greater than 60% uniform live cover with plant height greater than three (3) inches. Applications made to cool season grass hay and pasture, if applied after 9/1 of any year until 3/1 of the following year, shall not exceed 1/2 of the total nitrogen rate

14. Nutrient management plans that contain fields in which row crops will be grown will be revised at least once every three (3) years. Nutrient management plans that contain only permanent hay or pasture fields will be revised at least once every five

(5) years. Any such plan revisions will be submitted to DCR and the farm operator within two weeks of the revision per 4VAC5-15-100 C.

15. Biosolids applications on CRP or CREP lands must be pre-approved by NRCS and an appropriate conservation plan and NMP must be in place prior to application.
16. This nutrient management plan shall be amended or modified, by the certified planner who developed the initial plan, no later than the day of biosolids application if:
  - additional imported manure, biosolids or industrial waste that was not identified in the existing plan is applied to fields under the control of the operator;
  - available land area for the utilization of biosolids decreases below the level necessary to utilize biosolids in the plan;
  - cropping systems, rotations, tillage, or fields are changed where phosphorus will be applied at levels greater than crop nutrient needs based on soil analysis; or
  - actual biosolids nutrient applications are significantly more or less than the original planned applications, such that any needed supplemental nutrient applications (from any source) would need to be amended to achieve the appropriate loading rate and yield goals.
17. Any requirements of a permit issued by DEQ, which are more restrictive, supersede these Special Conditions.



**Nutrient Management Plan Balance Sheet**  
**(Spring, 2014-Fall, 2018)**  
**Campbell Farms-Virginia LLP**  
**Planner: Todd Keen (cert. No. 352)**

Tract: Bull Farm Location: Accomack

(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resi d	Manure/Biosl Rate & Type (season)	IT (d)	Man/Bio s N-P-K (lbs/ac)	Net = Needs - appld N-P- K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)
0/20(N)	7/7	2014	Potato	240-56-50	20/0	0.8t 2014 P(Su)	>7	2-2-7	220-55-50	N/A	220-55-50(br)
			Fallow	0-0-0	0/0				0-0-(5)	N/A	0-0-60(br)
		2015	Wheat (grain)	100-20-40	0/1				100-20-35	N/A	100-0-0(td)
			... ..	-- --							
		2016	Soybeans (DC)	0-20-40	0/0				0-40-15	N/A	30-0-90(br)
0/21-A,B(1P)	31/31		Corn (grain)	160-20-60	20/0				140-60-75	N/A	40-0-0(ba)
		2017	Soybeans (FS)	0-20-40	0/0				0-80-25	N/A	70-0-0(sd)
		2014	Potato	240-56-50	20/0	0.8t 2014 P(Su)			220-55-50	56	220-55-50(br)
			Fallow	0-0-0	0/0				0-0-(5)	56	
		2015	Wheat (grain)	100-0-0	0/1				100-0-(5)	102	100-0-0(td)
			... ..	-- --							
		2016	Soybeans (DC)	0-0-0	0/0				0-0-(5)	138	40-0-0(ba)
			Corn (grain)	130-0-0	20/0				110-0-(5)	188	70-0-0(sd)
		2017	Soybeans (FS)	0-0-0	0/0				0-0-(5)	232	

Tract: Packing House Location: Accomack

(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resi d	Manure/Biosl Rate & Type (season)	IT (d)	Man/Bio s N-P-K (lbs/ac)	Net = Needs - appld N-P- K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)
0/Spray Field(1P)	4/4	2014	Fescue grass hay mt.	70-0-85	0/0	20.k Wastew(Su)	>7	0-0-1	70-0-85	40	
		2015	... ..	70-40-70	0/0	20.k Wastew(Su)			70-40-155	80	
		2016	... ..	70-40-70	0/0	20.k Wastew(Su)			70-80-225	120	
		2017	... ..	70-0-85	0/0	20.k Wastew(Su)			70-80-310	160	
		2018	Fescue hay estb.	40-0-120	0/0	20.k Wastew(Su)			40-80-430	186	

Tract: Whaples Farm Location: Accomack

(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resi d	Manure/Biosid Rate & Type (season)	IT (d)	Man/Bio s N-P-K (lbs/ac)	Net = Needs - appld N-P- K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)
0/23-A-E(1P)	99/99	2014	Potato	240-56-50	20/0				220-55-50	56	220-55-50(br)
		2015	Wheat (grain)	100-20-40	0/2				100-20-40	102	0-0-60(br)
		2016	... .. Soybeans (DC)	0-20-40	0/0				0-40-20	138	100-0-0(td)
		2017	Corn (grain)	160-20-60	20/1				140-60-80	198	30-0-90(br)
			Soybeans (FS)	0-20-40	0/0				0-80-30	243	40-0-0(ba) 70-0-0(sd) 0-0-60(br)

Commercial Application Methods:  
br - Broadcast ba - Banded sd - Sidedress  
Notes:

### Soil Test Summary

Tract	Field	Acre	Date	P2O5	K2O	Lab	Soil pH
Bull Farm	20	7	2014-Sp	H+ (573 P2O5 lbs/acre)	H+ (394 K lbs/acre)	Brookside	6.7
Bull Farm	21-A, B	31	2014-Sp	VH (1124 P2O5 lbs/acre)	VH (502 K lbs/acre)	Brookside	6.6
Packing House	Spray Field	4	2014-Sp	VH (160 P ppm)	M+ (117 K ppm)	A&L Mill	6.5
Whaples Farm	23-A-E	99	2014-Sp	VH (1067 P2O5 lbs/acre)	H+ (402 K lbs/acre)	Brookside	6.1

# BROOKSIDE LABORATORIES, INC.

\*\* MANURE ANALYSIS REPORT \*\*

Keen Consulting, Inc.  
26229 Prettyman Road  
Georgetown, DE 19947


File Number: 18820  
Date Received: 4/21/2014  
Date Reported: 4/23/2014

Submitted By: Keen Consulting, Inc.

Lab Number	2250
Description	Cambell Farms Potato Culls

	% Dry Basis	% Wet Basis	lbs/ Ton
Moisture		81.81	1636.20
Mineral Matter	5.67	1.03	20.60
Lost By Ign (Org M+)	94.33	17.16	343.20
Total Nitrogen	2.11	0.384	7.68
Ammonia-N (NH4-N)		< 0.010	
Nitrate-N (NO3-N)		< 0.010	
Organic-N	2.11	0.384	7.68
Phosphorus (P)	0.29	0.053	1.06
Phos. as (P2O5)	0.66	0.120	2.40
Potassium (K)	2.22	0.404	8.08
Potassium as (K2O)	2.67	0.486	9.72

Reviewed by:



1b/A

# BROOKSIDE LABORATORIES, INC.

## SOIL AUDIT AND INVENTORY REPORT

18820-127

79

Name Keen Consulting, Inc. City Georgetown State DEIndependent Consultant Keen Consulting, Inc. Date 4/15/2014

Sample Location <u>CAMPBELL</u>		20	21-A	21-B	23-A	23-B
Sample Identification						
Lab Number		0731-1	0732-1	0733-1	0734-1	0735-1
Total Exchange Capacity (ME/100 g)		7.43	6.41	7.62	5.87	5.71
pH	Buffer (SMP/Sikora)	7.4	7.3	7.4	7.2	7.3
	H <sub>2</sub> O (1:1)	6.7	6.7	6.6	6.3	6.2
Organic Matter (humus) %		1.41	1.39	1.22	1.19	1.05
Estimated Nitrogen Release , lb/A		48	48	44	44	41
ANIONS	SOLUBLE SULFUR* ppm	41	33	42	39	25
	PHOSPHORUS MEHLICH III lb/A P as P <sub>2</sub> O <sub>5</sub>	573	943	1305	563	870
	ppm of P	125	206	285	123	190
	BRAY II lb/A P as P <sub>2</sub> O <sub>5</sub>					
	ppm of P					
EXCHANGEABLE CATIONS	OLSEN lb/A P as P <sub>2</sub> O <sub>5</sub>					
	ppm of P					
	CALCIUM* lb/A	2048	1760	2044	1422	1348
	ppm	1024	880	1022	711	674
	MAGNESIUM* lb/A	246	182	208	190	180
	ppm	123	91	104	95	90
	POTASSIUM* lb/A	394	440	564	392	398
	ppm	197	220	282	196	199
	SODIUM* lb/A	44	44	46	50	44
	ppm	22	22	23	25	22
BASE SATURATION PERCENT						
Calcium %		68.91	68.64	67.06	60.56	59.02
Magnesium %		13.80	11.83	11.37	13.49	13.13
Potassium %		6.80	8.80	9.49	8.56	8.94
Sodium %		1.29	1.49	1.31	1.85	1.68
Other Bases %		4.70	4.70	4.80	5.10	5.20
Hydrogen %		4.50	4.50	6.00	10.50	12.00
EXTRACTABLE MINORS						
Boron* (ppm)		0.75	0.76	0.62	0.68	0.64
Iron* (ppm)		192	182	202	138	151
Manganese* (ppm)		25	37	47	39	56
Copper* (ppm)		6.89	7.88	9.85	5.46	6.56
Zinc* (ppm)		2.94	3.96	4.58	6.25	7.25
Aluminum* (ppm)		795	725	868	719	741
OTHER TESTS	Soluble Salts (mmhos/cm)					
	Chlorides (ppm)					

\* Mehlich III Extractable

1b/A

# BROOKSIDE LABORATORIES, INC.

## SOIL AUDIT AND INVENTORY REPORT

18820-127

Name Keen Consulting, Inc. City Georgetown State DEIndependent Consultant Keen Consulting, Inc. Date 4/15/2014

Sample Location		CAMPBELL	23-C	23-D	23-E		
Sample Identification							
Lab Number			0736-1	0737-1	0738-1		
Total Exchange Capacity (ME/100 g)			6.01	6.20	5.94		
pH	Buffer (SMP/Sikora)		7.2	7.3	7.2		
	H <sub>2</sub> O (1:1)		6.2	6.1	6.1		
Organic Matter (humus) %			1.18	1.19	1.33		
Estimated Nitrogen Release lb/A			44	44	47		
ANIONS	SOLUBLE SULFUR*	ppm	34	27	36		
	MEHLICH III	lb/A P as P <sub>2</sub> O <sub>5</sub>	861	1067	747		
		ppm of P	188	233	163		
	BRAY II	lb/A P as P <sub>2</sub> O <sub>5</sub>					
		ppm of P					
EXCHANGEABLE CATIONS	OLSEN	lb/A P as P <sub>2</sub> O <sub>5</sub>					
		ppm of P					
	CALCIUM*	lb/A	1418	1466	1364		
		ppm	709	733	682		
	MAGNESIUM*	lb/A	188	184	184		
BASE SATURATION PERCENT		ppm	94	92	92		
	POTASSIUM*	lb/A	430	402	426		
		ppm	215	201	213		
	SODIUM*	lb/A	46	42	48		
		ppm	23	21	24		
BASE SATURATION PERCENT							
Calcium		%	58.99	59.11	57.41		
Magnesium		%	13.03	12.37	12.91		
Potassium		%	9.17	8.31	9.19		
Sodium		%	1.66	1.47	1.76		
Other Bases		%	5.20	5.20	5.20		
Hydrogen		%	12.00	13.50	13.50		
EXTRACTABLE MINORS							
Boron* (ppm)			0.74	0.72	0.74		
Iron* (ppm)			147	189	159		
Manganese* (ppm)			67	64	53		
Copper* (ppm)			6.59	9.76	7.31		
Zinc* (ppm)			10.75	12.19	6.21		
Aluminum* (ppm)			739	739	752		
OTHER TESTS	Soluble Salts (mmhos/cm)						
	Chlorides (ppm)						

\* Mehlich III Extractable



Source: Exmore, Virginia Google Maps



FIGURE 6.  
CULL DISPOSAL TRUCK ROUTE

KUZZENS- MAPPSVILLE NORTH PACKING PLANT  
MAPPSVILLE, VIRGINIA

MSA JOB #	DATE:	SCALE	By:
08719AO	1/22/2014	Graphic	MME

MSA, P.C.



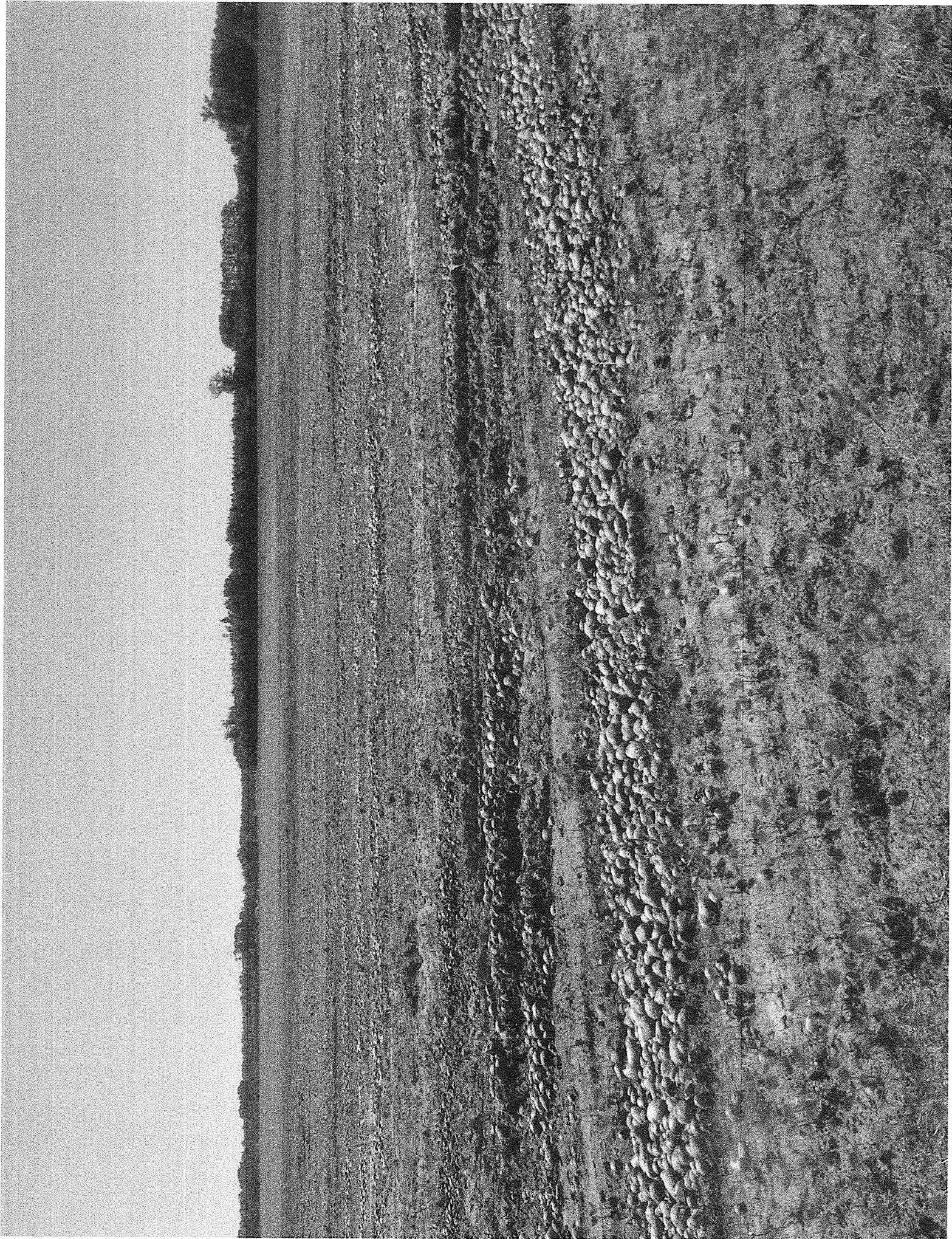
5033 Rouse Drive, Virginia Beach, VA. 23462  
(757) 490-9264 (ofc) (757) 490-0634 (fax)  
www.msasonline.com  
Environmental Sciences + Planning + Surveying  
Engineering + Landscape Architecture

## ATTACHMENT 9

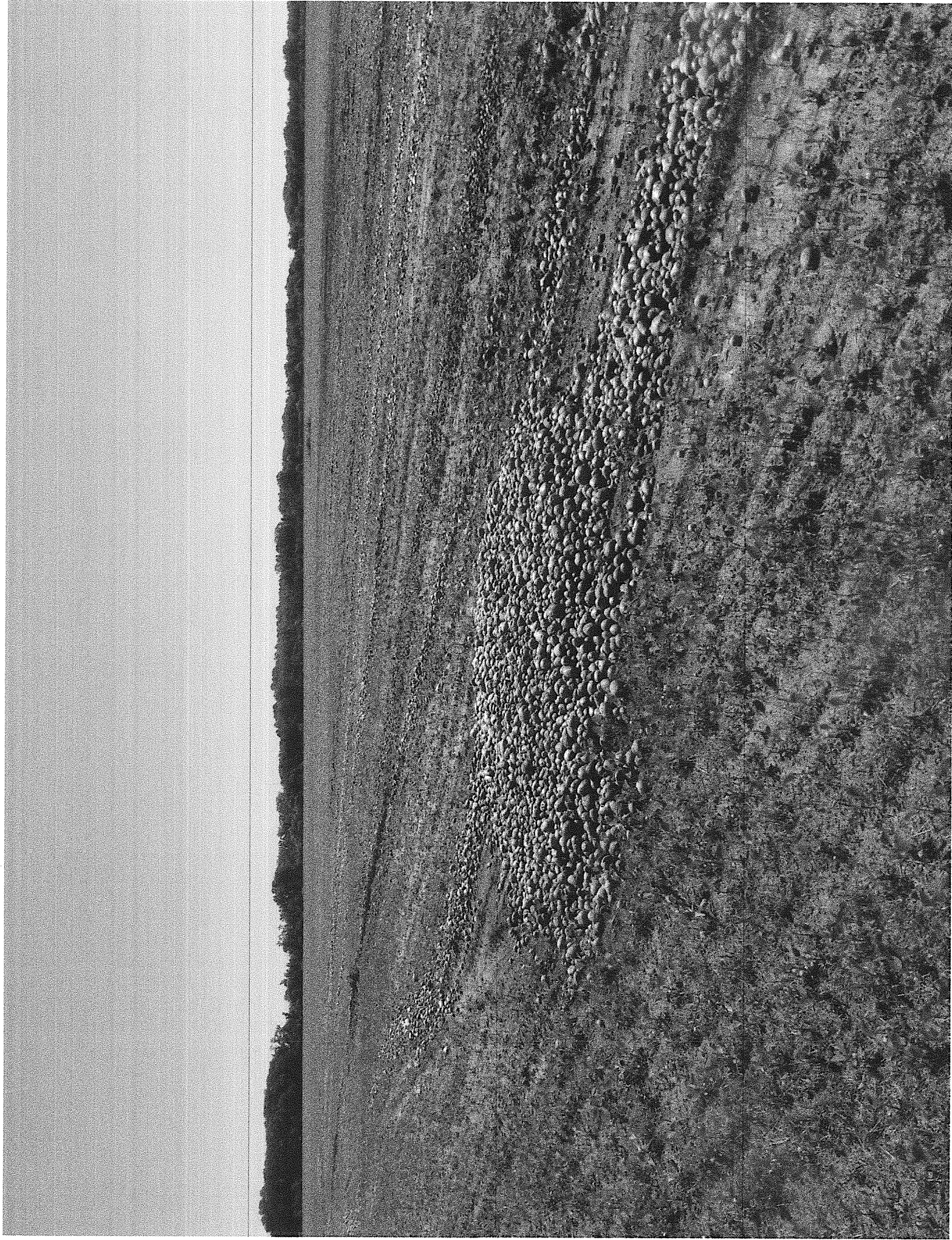
### INSPECTION REPORT

### CORRESPONDENCE











# MEMORANDUM

## VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

### TIDEWATER REGIONAL OFFICE

5636 Southern Boulevard

Virginia Beach, VA 23462

SUBJECT: **East Coast Brokers – Thornton Plant** Permit No. VPA01044

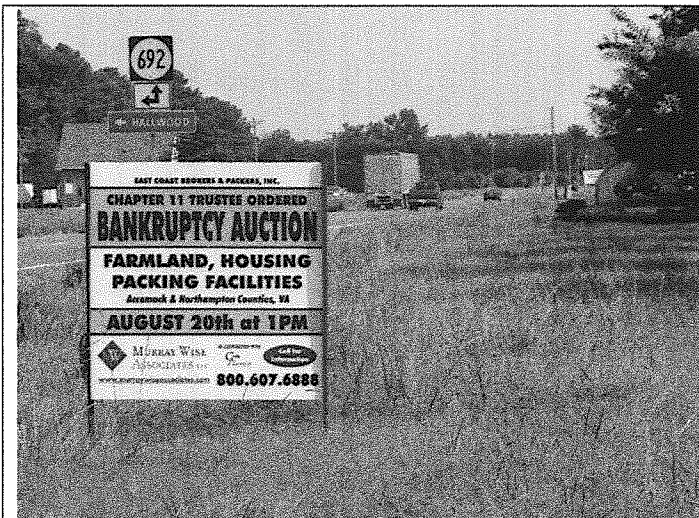
TO: Kenneth T. Raum

FROM: Stephen J. Thomas

DATE: July 31, 2013

COPIES: DEQ/ECM

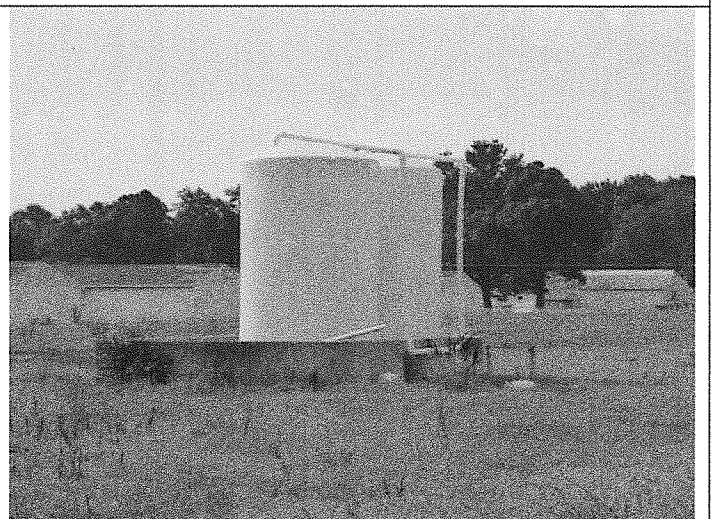
This site inspection was conducted on 7/31/2013. The facility is not in operation. No attendant was on site. The facility is being auctioned on 8/19/13. Please see photographs below.



Route 13 near the entrance to the Thornton facility, Arrow points at washdown flume area.



Packing Facility above. Processing wastewater holding tanks below.



Facility:	EAST COAST PACKERS & BROKERS – NORTH (TAYLOR & FULTON)
County/city:	ACCOMACK/MAPPSVILLE
Address:	P.O. Box 76 MAPPSVILLE, VA 23407
Contact/Title	MR. BATISTA MADONIA, SR.

PERMIT No..	VPA01044
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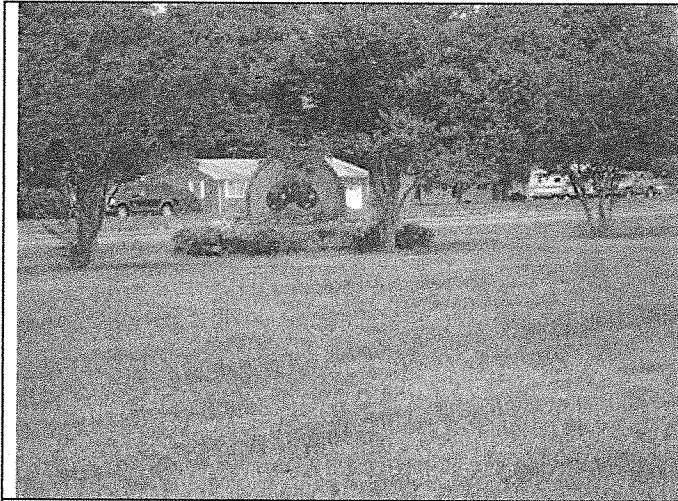
**DEPARTMENT OF ENVIRONMENTAL QUALITY  
VPA FACILITY  
RECON INSPECTION REPORT**

Inspection date:	7/6/2012	Date form completed:	7/6/2012
Inspection by:	Stephen J. Thomas	Inspection agency:	DEQ/TRO
Time spent:	2 Hours	Announced Inspection:	[X] Yes [ ] No
Reviewed by: Kenneth T. Raum / 07-24-12 <i>KTR</i>	Photographs taken at site? [X] Yes [ ] No		
Present at inspection:	N/A		
FACILITY TYPE:		FACILITY CLASS:	
( ) Municipal		( ) Major	
( ) Industrial		( ) Minor	
( ) Federal		( ) Small	
(X) VPA/NDC		(X) High Priority ( ) Low Priority	
TYPE OF INSPECTION:			
Routine		Reinspection	
Compliance/Assistance/Complaint		X	
Date of previous inspection:	8/23/2011	Agency:	DEQ/TRO
Last Month Average: Influent N/A	BOD <sub>5</sub> (mg/l)	TSS (mg/l)	Flow (MGD)
	Other:		
Last Month Average: Effluent N/A	BOD <sub>5</sub> (mg/l)	TSS (mg/l)	Flow (MGD)
	Other:		
Last Quarter Average: Effluent N/A	BOD <sub>5</sub> (mg/l)	TSS (mg/l)	Flow (MGD)
	Other:		
Data verified in preface:	Updated?	NO CHANGES?	
Has there been any new construction?		YES	NO
If yes, were the plans and specifications approved?		YES	NO
DEQ approval date:			
COPIES TO: (x) DEQ/TRO; (x) DEQECM; (x) OWNER; ( ) OPERATOR; ( ) EPA-Region III; ( ) Other:			

VPA01044 070612 SJT

PROBLEMS IDENTIFIED AT LAST INSPECTION:		CORRECTED	NOT CORRECTED
1.			
2.			
3.			
<b>SUMMARY</b>			
<b>INSPECTION COMMENTS:</b>			
	<p>The Taylor &amp; Fulton tomato packing facility is not in operation again this year. There was no one at the site. The facility last operated in 2009. The DEQ VPA permit expired on June 8, 2012 for this facility. East Coast Packers &amp; Brokers is the owner of this facility. I have been unable to reach any of my previous contacts at this facility and there is no activity at the packing shed. The grass is still being maintained in and around the site. All of the spray disposal field application equipment has been removed from the application fields.</p>		
<b>COMPLIANCE RECOMMENDATIONS FOR ACTION</b>			
1.	The facility cannot process vegetable crops at this packing shed until a valid VPA permit is obtained from DEQ.		
2.			
3.			

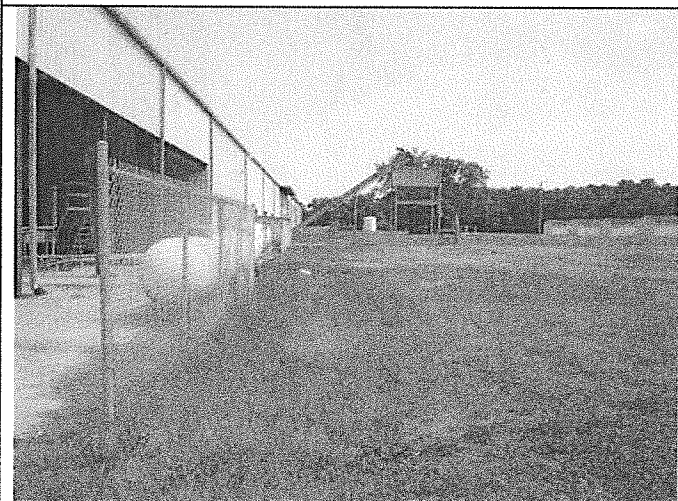




Taylor & Fulton Sign on Route 13



Front of Facility



Back of Facility



Tomato Wash Down Flume



Wash Water Holding Tanks



Effluent Spray Field Area



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### TIDEWATER REGIONAL OFFICE

Molly Joseph Ward  
Secretary of Natural Resources

5636 Southern Boulevard, Virginia Beach, Virginia 23462  
(757) 518-2000 Fax (757) 518-2009  
www.deq.virginia.gov

David K. Paylor  
Director  
Maria R. Nold  
Regional Director

January 8, 2015

Mr. Gerald B. O'Dell, Jr., Chief Farming Officer  
Kuzzens, Inc.  
P. O. Box 3088  
Immokalee, FL 34142

RE: Issuance of VPA Permit No. VPA01082  
Kuzzens, Inc.-Mappsville North Packing Plant, Mappsville VA  
Accomack Co.  
Draft Permit, Fact Sheet and Public Notice

Dear Mr. O'Dell:

The State Water Control Board is considering issuing the referenced permit. Please review the enclosed draft permit package with fact sheet and public notice carefully.

Certain public notice procedures must be complied with before the actual permit can be approved. They are as follows:

1. The attached public notice must be published once a week for two consecutive weeks in a newspaper of general local circulation. We are in receipt of a previously submitted authorization to bill form filled out and signed which will allow the newspaper to bill you for the public notice.
2. A minimum of 30 days will be allowed for public response following the date of the first public notice. If no public response is received, or the public response can be satisfactorily answered, then the permit will be processed. However, if there is significant public response, then we may hold a public hearing. You will be advised if this occurs.

If you have any questions or comments on the draft permit or public notice requirements, please contact me at (757) 518-2106.

Sincerely,

Robert E. Smithson, Jr.  
Environmental Specialist Senior

Encl: VPA01082 Draft Permit, Fact Sheet and Public Notice  
cc: DEQ-TRO ECM File

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a proposed permit from the Department of Environmental Quality that will allow the spray irrigation of treated industrial wastewater in Accomack County, (Mappsville, Virginia).

PUBLIC COMMENT PERIOD: MONTH DAY, YEAR to TIME p.m. on MONTH DAY, YEAR

PERMIT NAME: Virginia Pollution Abatement issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Kuzzen's Inc.; P. O. Box 3088, Immokalee, FL 34142; Permit No. VPA01082

NAME AND ADDRESS OF PERMITTED ACTIVITY: Kuzzen's Inc.-Mappsville North Packing Plant; 12201 Lankford Hwy, Mappsville, VA 23301

PROJECT DESCRIPTION: Kuzzen's Inc., Mappsville North Packing Plant has applied for the issuance of a permit for a seasonal operation (approx. 4 months out of the year). The industrial land application operation consists of the spray irrigation of potato wash water to 3.39 acres of the facility's own property planted in tall fescue grass. This facility washes harvested potatoes prior to packing and shipping to regional markets. The land application operation conveys a maximum of 2,500 gallons per day (wash water) and is land applied at a controlled rate. Unmarketable produce (culls) are disced into nearby farm sites (99 acres) as a soil amendment. Wastewater, soils and groundwater monitoring are required. DEQ's preliminary decision is to approve the permit.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: ROBERT E. SMITHSON, DEQ TIDEWATER REGIONAL OFFICE, 5636 SOUTHERN BLVD, VA BEACH VA 23462; Phone: 757-518-2106; E-mail: robert.smithsonjr@deq.virginia.gov; Fax: 757-518-2009. The public may review the draft permit and application at the DEQ office named above by appointment or may request copies of the documents from the contact person listed above.

88b

**Smithson Jr., Robert (DEQ)**

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**From:** Smithson Jr., Robert (DEQ)  
**Sent:** Thursday, November 20, 2014 3:55 PM  
**To:** Skiles, Keith (VDH)  
**Cc:** Sauer, Mark (DEQ); Austin, Deanna (DEQ); Thomas, Stephen (DEQ)  
**Subject:** DSS Comments Needed On Several Applications Previously Sent

Keith,

Please provide comments on the following applications previously sent several months ago **(even if it's a brief "no comment" so that we can move forward on these):**

Cardinal Village Mobile Home Park, New Church VA0065196  
Integrated Fisheries International, Mappsville VPA01060  
Kuzzens Mappsville North Packing Plant, Mappsville VPA01044  
Del Monte Fresh Production Processing Plant, Mappsville VPA01057



88c

**Smithson Jr., Robert (DEQ)**

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**From:** Smithson Jr., Robert (DEQ)  
**Sent:** Wednesday, October 29, 2014 8:56 AM  
**To:** Charles Hall  
**Cc:** Sauer, Mark (DEQ); 'Sam Frere'  
**Subject:** FW: Kuzzens-Mappsville North Incomplete Application: To Be Returned for Inaction

Clock is ticking. The trick (no treat) is that Friday is D-Day deadline before we return application for *inaction*.

---

**From:** Smithson Jr., Robert (DEQ)  
**Sent:** Wednesday, October 15, 2014 10:05 AM  
**To:** 'Charles Hall'  
**Cc:** Sauer, Mark (DEQ); 'Sam Frere'  
**Subject:** RE: Kuzzens-Mappsville North Incomplete Application: To Be Returned for Inaction

Good morning ,

Just a reminder that this application has been in the pending file awaiting Land owner authorizations and cull field acre/owner corrections among other things. As it has been two months in this status with no action, DEQ must decide if we should return the entire incomplete application back for do-over. Neither of us probably want that. If we do not receive the completed application by the end of this month, it will be returned and the clock will stop and restarted when MSA has everything they need for us to process.

---

**From:** Charles Hall [<mailto:Charles.Hall@msaonline.com>]  
**Sent:** Friday, August 08, 2014 3:36 PM  
**To:** Smithson Jr., Robert (DEQ)  
**Cc:** Austin, Deanna (DEQ); Morgan Evans  
**Subject:** Re: Kuzzens-Mappsville Cull Potato Procedures Need to Be Provided

Bob, here is the rest of the additional information you requested.

Culls applied to Whaples field.

Area of Whaples = 99-acres  
Culls applied = 2020 CWT = 101 tons

Application rate ~ 1ton/acre

Let me know if you need anything else.

Charles H. Hall, PG  
Partner, Director of Environmental Sciences

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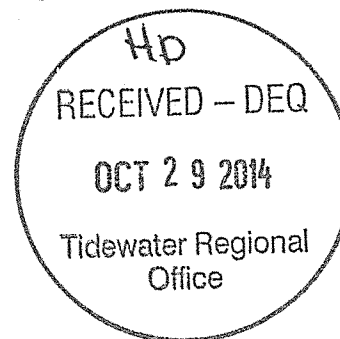
MSA, P.C.  
5033 Rouse Drive, Virginia Beach, VA 23462-3708  
Office (757) 490-9264 • Fax (757) 490-0634  
www.msaonline.com

Revised  
APPLIC 88d

Environmental Sciences • Planning • Surveying • Civil & Environmental Engineering • Landscape Architecture

October 28, 2014

Attn: Bob Smithson  
Virginia Dept. of Environmental Quality  
5636 Southern Boulevard  
Virginia Beach, VA 23462



**RE: VPA Permit Application  
Kuzzens-Mappsville North Packing Plant  
MSA Project #08719AO**

Dear Mr. Smithson:

Attached is the completed Virginia Pollution Abatement permit application for the subject facility.  
This application reflects each of the changes requested during the application process. Each of the DEQ comments has been addressed as follows:

Form C, Section C-I:

Pages C.I.4 through C.I.7- As indicated, data are from 2009. Recent data are required when it becomes available. A special condition will be included in the permit which requires analysis of parameters found in on these pages.

**Response: The application has been updated to reflect new data from 2014.**

Page C-1.4: Sodium should be present in this effluent. Provide data, or indicate that it will be provided when available.

**Response: The application has been updated to reflect new data from 2014.**

Form C, Section C-II:

Page C-II.2, (acres required/site life) will need to be updated/revised when current data becomes available. Ex. sulfur, salt, carbon/nitrogen balances, etc. A special condition will be included in the permit which requires analysis and calculation updates to this section.

**Response: The application has been updated to reflect new data from 2014.**

If the Bull & Whamples farms are not owned by Kuzzens, we require the land authorization forms from the owner of each farm.

**Response: The land authorization form has been signed and is included in this application.**

88e

Cull field acres and locations will need to be amended, as culls will apparently not be applied to the Bull Farm and may be somewhat limited on application to portions of the Whample Farm.

**Response: The cull field areas have been amended to reflect findings during your site visit.**

Should you have any questions or need additional information, please contact me at 490-9264 or email me at [Charles.hall@msaonline.com](mailto:Charles.hall@msaonline.com).

Sincerely,

A handwritten signature in black ink, appearing to read 'Charles H. Hall', with a long horizontal line extending to the right.

Charles H. Hall, P.G., Hydrogeologist  
*Director of Environmental Sciences*

88f

**AUTHORIZATION TO LAND APPLY WASTE**  
(Land Owner must sign and date this approval)

As land owner, I authorize Tri-Campbell Farms and Kuzzens Inc. to land apply potato culls to my property in accordance with their VPA Form C application. This authorization will remain in effect until such time as I notify the Department of Environmental Quality in writing that this authorization has been withdrawn.

Name: STEVE VANKESTEREN  
Address: Box 487  
ONANCOCK, VA  
Telephone: 757 - 787 - 1584  
Site Location(s) WAPLES FARM  
Date: Sept 24, 2014  
Signature: Steve Van Kesteren

REC. 10/29/14

20 y  
PERMIT EXPIRED  
DUE TO DELAY IN

**Smithson Jr., Robert (DEQ)**

---

**From:** Smithson Jr., Robert (DEQ)  
**Sent:** Thursday, September 11, 2014 12:16 PM  
**To:** 'Charles Hall'  
**Cc:** 'Sam Frere'; Sauer, Mark (DEQ); Austin, Deanna (DEQ)  
**Subject:** Kuzzens-Mappsville North Application Revisions Still Needed Before We Can Proceed

getting complete  
application

As you know, DEQ's inspection with Sam and Dirk on August 14 revealed that the application contains a number of errors that need correcting, as well as the need for cull field land use authorizations from the owners. Consequently, if you will be going to public notice later than next week, the permit will expire prior to being reissued and there's a very good chance that Kuzzens will be in jeopardy of operating without a permit.

88h

**Smithson Jr., Robert (DEQ)**

---

**From:** Charles Hall [Charles.Hall@msaonline.com]  
**Sent:** Friday, August 08, 2014 3:36 PM  
**To:** Smithson Jr., Robert (DEQ)  
**Cc:** Austin, Deanna (DEQ); Morgan Evans  
**Subject:** Re: Kuzzens-Mappsville Cull Potato Procedures Need to Be Provided

Bob, here is the rest of the additional information you requested.

Culls applied to Whaples field.

Area of Whaples = 99-acres

Culls applied = 2020 CWT = 101 tons

Application rate ~ 1ton/acre

Let me know if you need anything else.

Charles H. Hall, PG  
Partner, Director of Environmental Sciences

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Cell: 757-560-0705  
[Charles.Hall@msaonline.com](mailto:Charles.Hall@msaonline.com)



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On Mon, Aug 4, 2014 at 2:37 PM, Charles Hall <[Charles.Hall@msaonline.com](mailto:Charles.Hall@msaonline.com)> wrote:  
Bob, here some answers to your questions. This is a new beast so I appreciate your patience as well.

1. Figure 2 of the application indicates that the culls are transferred to storage bins and not on the ground. Once full, the bins are transferred to hauling trucks for delivery to the cull fields. Once spread on the appropriate section of field, they are allowed to break down for about 2 weeks so that it can be properly tilled into the soil. They are not buried in trenches. Each batch is placed into an unused section of field so that they are not re-digging recently tilled sections. The crop rotation schedule is provided in the NMP [as it is currently written):

2014 wheat  
2015 soybeans

2016 corn  
2017 soybeans.

88i

2. The plan only specified potatoes in 2014 in the event potatoes were in the field this first year - after that, yes no potatoes will be planted. The use of "fallow" as a crop was to indicate that after potatoes would be harvested that first year, nothing is planted [field remains fallow] until the culls are disc'ed in. I am trying to find out how many tons per acre are added to the cull fields.
3. Fescue would be grown. If it is important, the description for cutting grass could be re-written to say that the grass will be cut once per week or as needed depending upon plant performance.
4. Page C-II.4 of the application indicates that the land application site is owned by the applicant. This was verified.

Hope that helps and as soon as I know about the ton/acre I will let you know. They are done for the season - apparently the rains made for a short season.

Regards,

Charles H. Hall, PG  
Partner, Director of Environmental Sciences

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[Charles.Hall@msaonline.com](mailto:Charles.Hall@msaonline.com)



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On Wed, Jul 30, 2014 at 4:15 PM, Smithson Jr., Robert (DEQ) <[Robert.SmithsonJr@deq.virginia.gov](mailto:Robert.SmithsonJr@deq.virginia.gov)> wrote:

Charles,

I'm learning all kinds of new things about spud operations, more specifically about *environmentally safe disposal of bad spuds*. Evidently the operation can create havoc (blight/disease spores/vector attraction) if not managed properly..... so here goes:

We need answers to the following:

88j

1) Where & how will the culls be stored prior to going to the farm(s)? Will it be off the ground (truck) & covered? How long will they sit in storage before transit to the farm(s). What months will culls be managed? How is Kuzzen's planning to handle the culls when they reach the farm site (discing in within 48 hrs? burial in trenches ? ) How often will culls be applied to the same field? What is the rotation schedule? Approx. how many tons will be applied per acre?

2) The NMP says in 2014 the Bull & Whample fields will be in potato (fallow)/wheat (grain). What does that mean? [Note: The cull fields should not be planted in potatoes because of danger of introducing nematodes & soilborne diseases.]

3) In an unrelated matter ... how often does Kuzzens propose to cut the fescue ( hay). The previous permit for this site stipulated cutting once per week but if the fescue is being managed differently

( hay crop for instance) we can change it. Let me know

4) You were going to research/confirm that Kuzzens owns all the fields on the Bull & Whample farms. Otherwise, we will need land authorization forms, if they apply.

Deep breath

Thanks



**Smithson Jr., Robert (DEQ)**

---

**From:** Charles Hall [Charles.Hall@msaonline.com]  
**Sent:** Wednesday, July 16, 2014 9:13 PM  
**To:** Smithson Jr., Robert (DEQ)  
**Cc:** Morgan Evans; Austin, Deanna (DEQ); Sauer, Mark (DEQ)  
**Subject:** Re: Kuzzens- Mapssville North & Del Monte DMR Monthly Reporting Frequency

I am glad you asked Bob. I do not see a public benefit to submitting permit compliance reports on seasonal regulated activities during the off-season. In the case of vegetable processing, they simply don't produce wastewater after shutting down operations for the season. Although as you suggest, this may not be appropriate for other permits. For instance VDH public water supply permits or VDEQ groundwater withdrawal permits can be relevant because some of these facilities are manned and perform off-season construction or maintenance work in preparation for the next season. This probably could be handled on a case-by-case basis determined during the preliminary engineering conference and addressed through permit Special Conditions. Of course we bill our clients for our work so the upside for our clients would be a downside for us. Either way it is the reasonable thing to do.

Charles H. Hall, PG  
 Partner, Director of Environmental Sciences

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[Charles.Hall@msaonline.com](mailto:Charles.Hall@msaonline.com)



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On Wed, Jul 16, 2014 at 2:35 PM, Smithson Jr., Robert (DEQ) <[Robert.SmithsonJr@deq.virginia.gov](mailto:Robert.SmithsonJr@deq.virginia.gov)> wrote:

Hi Gang,

In an effort to make life easier on MSA and the E. Shore seasonal operators (like the referenced Kuzzens & Del Montes we are working on), I wanted to get **your feedback** on not requiring monthly reports 6 mos. out of the year when the facilities are not operating. **We would just want to be sure that other off season reports do not slip through the cracks (like annual summary reports due in January).** Would you like to see reporting frequency relief in the off season or has this not been a problem & you are happy to leave things the way they have been?

I am always looking for ways to tweek permits & their functionality to fit the operation, protect the environment, but not be any more burdensome to our clients than need be. Please provide your feedback on this after weighing any downsides it might pose for you.

91  
**Smithson Jr., Robert (DEQ)**

---

**From:** Smithson Jr., Robert (DEQ)  
**Sent:** Monday, July 14, 2014 2:36 PM  
**To:** Skiles, Keith (VDH)  
**Cc:** Austin, Deanna (DEQ)  
**Subject:** FW: Permit Application for Review-Permit #VPA01082, Kuzzens-Mappsville N. Packing Plant, Mappsville VA

Need to know if DSS has comments or not on the referenced application sent last month. Thanks

---

**From:** Smithson Jr., Robert (DEQ)  
**Sent:** Wednesday, June 11, 2014 4:23 PM  
**To:** Horne, Daniel (VDH); Howell, Beth (MRC); Stagg, Ben (MRC); Skiles, Keith (VDH)  
**Cc:** 'Charles Hall'; 'Morgan Evans'; 'Richard Davis'  
**Subject:** Permit Application for Review-Permit #VPA01082, Kuzzens-Mappsville N. Packing Plant, Mappsville VA

Attached is a link to the FTP site to access a permit application for your review. Under the folder for the facility listed above on the FTP site, there is a letter for each agency and the permit application. Please pull the information (available for 30 days) that you need off the FTP site. If you have any questions, please contact me. Thanks

<http://www.deq.virginia.gov/filesshare/wps/PERMIT/TRO/VDH,%20DSS,%20VMRC%20For%20Review/VPA01082%20Kuzzens-Mappsville%20N.%20Packing%20Plant/>

**Smithson Jr., Robert (DEQ)**

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**From:** Smithson Jr., Robert (DEQ)  
**Sent:** Tuesday, August 19, 2014 3:30 PM  
**To:** 'Charles Hall'  
**Cc:** 'Edward Lynch'; 'Sam Frere'; Thomas, Stephen (DEQ); Austin, Deanna (DEQ); Sauer, Mark (DEQ)  
**Subject:** RE: Kuzzens- Mappsville: Cull Farms Bull/Whample Property Ownership?  
**Attachments:** P1010705.jpg

There is one more thing I didn't mention. This, from our observations and the pictures taken (see attached), potato culls cannot be dumped or massed more than 2 potatoes deep, otherwise there will be disking and soil issues.

---

**From:** Smithson Jr., Robert (DEQ)  
**Sent:** Tuesday, August 19, 2014 3:18 PM  
**To:** 'Charles Hall'  
**Cc:** 'Edward Lynch'; 'Sam Frere'; Thomas, Stephen (DEQ); Austin, Deanna (DEQ)  
**Subject:** FW: Kuzzens- Mappsville: Cull Farms Bull/Whample Property Ownership?

Dirk and Sam may have filled you in on our field trips to both the Kuzzens & Del Monte sites. Based on our visit to Kuzzens we ascertained several things that require MSA's response (amended application). They are:

- 1) If the Bull & Whamples farms are not owned by Kuzzens, we require the land authorization forms from the owner of each farm
- 2) Potato culls are currently being disced in by Benny Hall Jr. within 48 hrs. which is what the permit will call for (not sitting on the ground for 2 weeks). This is also appropriately stipulated in your application under "cull disposal".
- 3) Cull field acres and locations will need to be amended, as culls will apparently not be applied to the Bull Farm and may be somewhat limited on application to portions of the Whample Farm. The permit will stipulate that culls will not be applied within 10 feet of ag ditches.

Del Monte

Sam and I agreed that we need to see more sample results over the next number of weeks while they are in operation to ascertain if the chlorine and sodium numbers remain high before any decisions are made concerning the permit. Evidently they are told to keep the chlorine ppms at (or above) 200

Did I miss anything to relay guys?

---

**From:** Smithson Jr., Robert (DEQ)  
**Sent:** Wednesday, July 30, 2014 8:48 AM  
**To:** 'Charles Hall'  
**Cc:** 'Morgan Evans'  
**Subject:** Kuzzens- Mappsville: Cull Farms Bull/Whample Property Ownership?

Charles, did MSA respond to this question of property ownership of all cull fields (the 2 farms in NMP)? If so, I can't find it in my e-mail(s). We're trying to wrap this up for your client. Thanks

---

**From:** Charles Hall [<mailto:Charles.Hall@msaonline.com>]  
**Sent:** Monday, June 23, 2014 1:08 PM  
**To:** Smithson Jr., Robert (DEQ)  
**Cc:** Morgan Evans; Austin, Deanna (DEQ); Jim Corneillie  
**Subject:** Re: FW: Fipronil for Kuzzens

I sent this earlier but it came back because the attachment was 1GB too large.

Bob, answers to your questions.

**How close to the fields are waterways?** There is approximately 200-ft of mature forested buffer between the spray field and the nearest drainage feature. Dirk is going to measure it for me tomorrow. But understand that it is not a perennial water body and likely only wet during winter months. The nearest perennial water body appears to be a farm pond approximately 1,500-ft to the east. Also, the permit prohibits irrigating at rates or during conditions when runoff could be generated.

**What is the dosage rate?** The crop fields are sprayed at a rate not to exceed 3-oz/acre (per Regent manufacturer). This product is applied only during planting so it should be less of a concern after harvest. If the question is regarding waste wash water dosage, that application to the spray field is normally 0.2"/day (but limited by permit to 1"/day).

You also had previous questions on the Nutrient Management Plan.

**Why is there a table for biosolid application?** You are correct we are not applying sewage sludge biosolids. That table is required content for the NMP. For clarity, we have added a note prior to the NMP that states the table is a required document but not applicable. The note also indicates that an application schedule for wastewater and culls is included as tables within the NMP.

**The application refers to 15 acres for disposal while the NMP identifies much more.** The application was initially prepared before the second cull field was obtained for use. With the addition of the Whaples Farm for cull disposal, the total disposal area increases to 137-acres. The application package has been revised to reflect this increase.

Use the following link to download a pdf of the revised package.

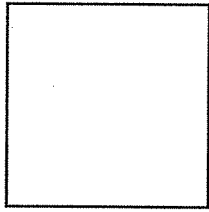
<https://drive.google.com/file/d/0B0g5tMXOQM1KQWVleDFYd0VfQVE/edit?usp=sharing>

If you have any problems with that I can deliver it. Let me know if you need anything else Bob.  
Regards,

Charles H. Hall, PG  
Partner, Director of Environmental Sciences

**MSA, P.C. - Celebrating our 40th Anniversary in 2013!**

Environmental Sciences • Planning • Surveying  
Civil & Environmental Engineering • Landscape Architecture  
Office: 757-490-9264  
Cell: 757-560-0705  
[Charles.Hall@msaonline.com](mailto:Charles.Hall@msaonline.com)



Virginia Certified Small Business Enterprise  
Veteran Owned Small Business

On Mon, Jun 23, 2014 at 9:21 AM, Smithson Jr., Robert (DEQ) <[Robert.SmithsonJr@deq.virginia.gov](mailto:Robert.SmithsonJr@deq.virginia.gov)> wrote:

We have some questions/observations concerning one of the pesticides used on potatoes at Kuzzens. Please answer the following questions for us. Some questions we need to resolve to determine if we need to have monitoring for this constituent in the new permit.

How close are the fields to any waterways?

Do we know the dosage rate at which they use?

---

**From:** Austin, Deanna (DEQ)  
**Sent:** Friday, June 20, 2014 6:36 AM  
**To:** Smithson Jr., Robert (DEQ)  
**Cc:** Sauer, Mark (DEQ)  
**Subject:** Fipronil for Kuzzens

Well I don't have great answers for you. Fipronil is highly toxic to aquatic species. But since this is a VPA, there should be no runoff. How close are the fields to any waterways? That may be something to consider.

There are analytical methods to test for Fipronil by GC/Mass Spec, however, there does not appear to be any approved labs with Virginia Accreditation. If the facility was to find a lab running Fipronil with another state accreditation, they would need to have that lab seek VA accreditation for the method.

Do we know the dosage rate at which they use?

Overall some questions we need to resolve before saying okay to this insecticide

## Smithson Jr., Robert (DEQ)

---

**From:** Smithson Jr., Robert (DEQ)  
**Sent:** Wednesday, July 30, 2014 4:15 PM  
**To:** 'Charles Hall'  
**Cc:** Austin, Deanna (DEQ); 'Morgan Evans'  
**Subject:** Kuzzens-Mappsville Cull Potato Procedures Need to Be Provided

Charles,

I'm learning all kinds of new things about spud operations, more specifically about *environmentally safe disposal of bad spuds*. Evidently the operation can create havoc (blight/disease spores/vector attraction) if not managed properly..... so here goes:

We need answers to the following:

- 1) Where & how will the culls be stored prior to going to the farm(s)? Will it be off the ground (truck) & covered? How long will they sit in storage before transit to the farm(s). What months will culls be managed? How is Kuzzen's planning to handle the culls when they reach the farm site (discing in within 48 hrs? burial in trenches ? ) How often will culls be applied to the same field? What is the rotation schedule? Approx. how many tons will be applied per acre?
- 2) The NMP says in 2014 the Bull & Whample fields will be in potato (fallow)/wheat (grain). What does that mean? [Note: The cull fields should not be planted in potatoes because of danger of introducing nematodes & soilborne diseases.]
- 3) In an unrelated matter ... how often does Kuzzens propose to cut the fescue ( hay). The previous permit for this site stipulated cutting once per week but if the fescue is being managed differently ( hay crop for instance) we can change it. Let me know
- 4) You were going to research/confirm that Kuzzens owns all the fields on the Bull & Whample farms. Otherwise, we will need land authorization forms, if they apply.

Deep breath

Thanks

**Smithson Jr., Robert (DEQ)**

---

**From:** Charles Hall [Charles.Hall@msaonline.com]  
**Sent:** Thursday, June 26, 2014 4:33 PM  
**To:** Smithson Jr., Robert (DEQ)  
**Subject:** Re: FW: Fipronil for Kuzzens

Bob, we have done some recon in the wooded area next to the spray field to verify the status of the drainageway in there. The drainageway is intermittent; however it currently holds about 2" of water. As such, even though it will dry out, it appears possible the feature could contain surface water at the time washwater will be sprayed on the disposal field.

The spray field ends approximately 25-ft from the edge of woods and then there is approximately 125-ft more from the edge of the woods to the drainage feature. That is, there is almost a 150-ft buffer from the edge of the spray field to the intermittent drainage feature.

They anticipate spraying between 0.2" and 1"/day.

Let me know if you need anything else Bob.

Charles H. Hall, PG  
Partner, Director of Environmental Sciences

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How close are the fields to any waterways?

Do we know the dosage rate at which they use?



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On Mon, Jun 23, 2014 at 9:21 AM, Smithson Jr., Robert (DEQ) <[Robert.SmithsonJr@deq.virginia.gov](mailto:Robert.SmithsonJr@deq.virginia.gov)> wrote:

We have some questions/observations concerning one of the pesticides used on potatoes at Kuzzens. Please answer the following questions for us. Some questions we need to resolve to determine if we need to have monitoring for this constituent in the new permit.

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Do we know the dosage rate at which they use?

---

**From:** Austin, Deanna (DEQ)  
**Sent:** Friday, June 20, 2014 6:36 AM  
**To:** Smithson Jr., Robert (DEQ)  
**Cc:** Sauer, Mark (DEQ)  
**Subject:** Fipronil for Kuzzens

Well I don't have great answers for you. Fipronil is highly toxic to aquatic species. But since this is a VPA, there should be no runoff. How close are the fields to any waterways? That may be something to consider.

There are analytical methods to test for Fipronil by GC/Mass Spec, however, there does not appear to be any approved labs with Virginia Accreditation. If the facility was to find a lab running Fipronil with another state accreditation, they would need to have that lab seek VA accreditation for the method.

Do we know the dosage rate at which they use?

Overall some questions we need to resolve before saying okay to this insecticide

**Smithson Jr., Robert (DEQ)**

---

**From:** Charles Hall [Charles.Hall@msaonline.com]  
**Sent:** Monday, June 23, 2014 1:08 PM  
**To:** Smithson Jr., Robert (DEQ)  
**Cc:** Morgan Evans; Austin, Deanna (DEQ); Jim Corneillie  
**Subject:** Re: FW: Fipronil for Kuzzens

I sent this earlier but it came back because the attachment was 1GB too large.

Bob, answers to your questions.

**How close to the fields are waterways?** There is approximately 200-ft of mature forested buffer between the spray field and the nearest drainage feature. Dirk is going to measure it for me tomorrow. But understand that it is not a perennial water body and likely only wet during winter months. The nearest perennial water body appears to be a farm pond approximately 1,500-ft to the east. Also, the permit prohibits irrigating at rates or during conditions when runoff could be generated.

**What is the dosage rate?** The crop fields are sprayed at a rate not to exceed 3-oz/acre (per Regent manufacturer). This product is applied only during planting so it should be less of a concern after harvest. If the question is regarding waste wash water dosage, that application to the spray field is normally 0.2"/day (but limited by permit to 1"/day).

You also had previous questions on the Nutrient Management Plan.

**Why is there a table for biosolid application?** You are correct we are not applying sewage sludge biosolids. That table is required content for the NMP. For clarity, we have added a note prior to the NMP that states the table is a required document but not applicable. The note also indicates that an application schedule for wastewater and culls is included as tables within the NMP.

**The application refers to 15 acres for disposal while the NMP identifies much more.** The application was initially prepared before the second cull field was obtained for use. With the addition of the Whaples Farm for cull disposal, the total disposal area increases to 137-acres. The application package has been revised to reflect this increase.

Use the following link to download a pdf of the revised package.

<https://drive.google.com/file/d/0B0g5tMXOQM1KQWVleDFYd0VfQVE/edit?usp=sharing>

If you have any problems with that I can deliver it. Let me know if you need anything else Bob. Regards,

Charles H. Hall, PG  
Partner, Director of Environmental Sciences

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# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### TIDEWATER REGIONAL OFFICE

5636 Southern Boulevard, Virginia Beach, Virginia 23462

(757) 518-2000 Fax (757) 518-2009

[www.deq.virginia.gov](http://www.deq.virginia.gov)

Molly Joseph Ward  
Secretary of Natural Resources

David K. Paylor  
Director

Maria R. Nold  
Regional Director

June 18, 2014

Mr. Richard Davis, Farm Manager  
Kuzzens, Inc.  
3769 Grapeland Circle  
Exmore, VA 23550

RE: VPA Permit Application for Kuzzens-Mappsville North Packing Plant (previously VPA01044)  
Kuzzens, Inc. VPA01082: Application Administratively Complete  
12201 Lankford Highway, Mappsville VA 23301

Dear Mr. Davis:

Your revised application with Nutrient Mgt Plan (NMP) received June 13, 2014 has been reviewed and appears to be administratively complete. Other reviews of the application will be required by state agencies to ensure that public health and the environment will be protected.

The next steps involve assembling the information necessary to develop the permit limitations and then drafting the permit. Once the draft permit is prepared and the appropriate reviews are performed, I will transmit the draft permit and supporting documentation to you for review. I anticipate that to occur by the second week in July, barring unforeseen circumstances.

Thank you and your consultant, MSA, for submitting all the various parts necessary to complete the application. If you have any questions about our procedures or the status of your draft permit, please feel free to call me at (757) 518-2106.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert E. Smithson".

Robert E. Smithson  
Environmental Specialist Senior

cc: DEQ ECM File  
MSA- Charles Hall



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# COMMONWEALTH of VIRGINIA

Marissa J. Levine, MD, MPH, FAAFP  
State Health Commissioner

DEPARTMENT OF HEALTH  
**OFFICE OF DRINKING WATER**  
Southeast Virginia Field Office

John J. Aulbach II, PE  
Director, Office of Drinking Water

830 Southampton Avenue  
Suite 2058  
Norfolk, VA 23510  
Phone (757) 683-2000  
Fax (757) 683-2007

## MEMORANDUM

**TO:** Robert E. Smithson, Jr.  
Environmental Specialist Senior  
Department of Environmental Quality – Tidewater Regional Office

**DATE:** JUN 13 2014

**FROM:** Daniel B. Horne, PE  
Engineering Field Director *DBH*

**CITY/COUNTY:** Accomack

**PROJECT TYPE:** ☒ New ☐ Renewal or Revision

☐ VPDES ☒ VPA ☐ VWPP ☐ JPA ☐ Other: \_\_\_\_\_

☒ Number: VPA 01082

**OWNER/APPLICANT:** Kuzzens-Mappsville

**PROJECT:** Kuzzens-Mappsville North Packing Plant

- ☒ There are no public water supply raw water intakes located within 15 miles downstream or within one tidal cycle upstream of the existing project.
- ☐ The raw water intake for the \_\_\_\_\_ waterworks is located \_\_\_\_\_ miles [downstream/upstream] of the discharge. This should be a sufficient distance to minimize the impacts of the discharge. We recommend a minimum Reliability Class of \_\_\_\_ for this facility.
- ☐ The raw water intake for the \_\_\_\_\_ waterworks is located \_\_\_\_\_ miles [downstream/upstream (within one tidal cycle)] of the discharge.
- ☐ Please forward a copy of the Draft Permit for our review and comment.
- ☐ Comments:

Prepared by:

*Kebede M. Feleke*  
Kebede M. Feleke  
Assistant District Engineer

pc: V.D.H. - Office of Drinking Water, Field Services Engineer

R:\DIST22\Accomack\DEQ Permits\2014\VPA Kuzzens-Mappsville 2014.docx



**Smithson Jr., Robert (DEQ)**

---

**From:** Smithson Jr., Robert (DEQ)  
**Sent:** Wednesday, June 11, 2014 4:23 PM  
**To:** Horne, Daniel (VDH); Howell, Beth (MRC); Stagg, Ben (MRC); Skiles, Keith (VDH)  
**Cc:** 'Charles Hall'; 'Morgan Evans'; 'Richard Davis'  
**Subject:** Permit Application for Review-Permit #VPA01082, Kuzzens-Mappsville N. Packing Plant, Mappsville VA

Attached is a link to the FTP site to access a permit application for your review. Under the folder for the facility listed above on the FTP site, there is a letter for each agency and the permit application. Please pull the information (available for 30 days) that you need off the FTP site. If you have any questions, please contact me. Thanks

<http://www.deq.virginia.gov/filesshare/wps/PERMIT/TRO/VDH,%20DSS,%20VMRC%20For%20Review/VPA01082%20Kuzzens-Mappsville%20N.%20Packing%20Plant/>

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**Smithson Jr., Robert (DEQ)**

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**From:** Charles Hall [Charles.Hall@msaonline.com]  
**Sent:** Tuesday, June 10, 2014 2:03 PM  
**To:** Smithson Jr., Robert (DEQ)  
**Subject:** Re: VPA01082: Kuzzens Mappsville North-Incomplete Application

Actually, all the tomato processing equipment is out by the highway right now! They ripped everything out. So yes, we are good with potatoes only. Thanks for checking.

Charles H. Hall, PG  
Partner, Director of Environmental Sciences

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Cell: 757-560-0705  
[Charles.Hall@msaonline.com](mailto:Charles.Hall@msaonline.com)



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On Tue, Jun 10, 2014 at 2:01 PM, Smithson Jr., Robert (DEQ) <[Robert.SmithsonJr@deq.virginia.gov](mailto:Robert.SmithsonJr@deq.virginia.gov)> wrote:

So you (and the client) are satisfied that potatoes are the only crop that will be washed/prepped for the next 10 year period?

---

**From:** Charles Hall [mailto:[Charles.Hall@msaonline.com](mailto:Charles.Hall@msaonline.com)]  
**Sent:** Tuesday, June 10, 2014 1:42 PM  
**To:** Smithson Jr., Robert (DEQ)  
**Subject:** Re: VPA01082: Kuzzens Mappsville North-Incomplete Application

Here is where I think we are. We replied to your (3/5/14) comment letter on 3/25/14. Along with that reply, we submitted a revised permit application, permit maintenance fee information document, and the authorization to bill applicant document. Then on 4/30/14, we forwarded the washwater lab results you had requested. The only outstanding item I believe you need at this point is the nutrient management plan. We agreed to prepare one for the cull field as well, even though it isnt technically required. I am checking with the certified Planner as to when to expect that. If there is anything else please let me know.



MSA, P.C.  
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www.msaonline.com

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Environmental Sciences • Planning • Surveying • Civil & Environmental Engineering • Landscape Architecture

March 25, 2014

Robert E. Smithson, Jr.  
Virginia Dept. of Environmental Quality  
5636 Southern Boulevard  
Virginia Beach, VA 23462



**RE: Mappsville North Packing Plant  
VPA Permit Application  
MSA Project #08719AO**

Dear Mr. Smithson:

We received your review comments (3/5/14) regarding the application for a permit to dispose wastewater at the above referenced facility. Enclosed for your review are the revised sections of the VPA Permit Application and additional information related to the comments. Each of the DEQ comments has been addressed as follows:

Form C, Section C-1

Page C-1.1. 2a. *Identify all potential crops involved (i.e. which vegetables to be washed/packaged). Any other pesticides/herbicides that might be used will also need to be identified on page C.1.7 (waste characterization).*

**Response: Potatoes will be processed at this facility. Text in the application has been revised from "vegetagbles" to "potatoes".**

Pages C.1.4 through C.1.7- *As indicated, data are from 2009. Recent data are required when it becomes available. A special condition will be included in the permit which requires analysis of parameters found in on these pages.*

**Response: Noted.**

Page C-1.3: *A waiver has not been requested for any parameters in section 4.a. for this permit application. Waivers are granted on a case by case basis and are not to be generically assumed. Provide rationale for each parameter requesting to be waived.*

**Response: No waiver was assumed or requested in the initial application. Where rationale is presented in the revised application, we are requesting a parameter to be waived as non-applicable.**

Page C-1.4: *Sodium should be present in this effluent. Provide data, or indicate that it will be provided when available.*

**Response: Sodium containing substances will no longer be used at this processing facility.**

Page C-1.7: *Parameters marked unknown concentration will either need to be identified or concentration marked "to be provided". Item 5: "gasing off free chlorine" has not been explained or source identified. A concentration and source for chlorine is also needed here or elsewhere in the application.*

**Response: Noted. Reference to chlorine was relict from prior application for this facility when sodium hypochlorite was used as a disinfectant.**

Form C, Section C-11.

Page C-11.2, Item#3: *Appendix 11: A complete description of agronomic practices has not been provided. Please reference the enclosure for direction.*

**Response: The agronomic practices section provided in the original application has been revised as requested and enclosed in Appendix C.**

Page C-11.2, Item#3: *Appendix 11: Please provide a copy of a current, approved nutrient management plan (NMP). If one has not been developed/approved indicate when it will be available. It should show, but not be limited to nutrient management details for tall fescue grasses. We are particularly interested in discussions on sodium and copper residual levels in the field(s). Plan of action for problems (or potential problems) identified. Salts in irrigation water can be detrimental to plant growth if its concentration is too high, preventing water from being easily absorbed by the grass, causing drought-type symptoms. Tall Fescue is only moderately tolerant to salts. The plan should also recommend supplemental fertilizer in the summer to keep grasses healthy and viable, since the irrigation wastewater is generally nutrient poor. The plan will include, but not be limited to a discussion of PAN. The NMP should be approved by a certified nutrient mgt. planner.*

**Response: Noted. A current nutrient management plan to at least include the above will be provided as soon as possible.**

Page C-11.2, Item#4: *Elaborate on the type of spray system used, it's adequacy, problems encountered with it in the past, spare parts available, back up procedures, if necessary, etc.*

**Response: The older irrigation system will no longer be used. In its place will be irrigation by spray truck as explained in the Agronomic Practices documents (Appendix C).**

Page C-11.4, Item#10: *If the land application site is entirely owned by the applicant, the authorization to land apply document on page C-11.5 is not applicable. Please explain why it is included.*

**Response: The applicant is the owner of the spray field. This Item was mistakenly completed in the initial application and has been removed from the revised submission.**

Page C-11.2, Exhibit B: *A discussion on culls disposal has been completely omitted, but is indicated here in exhibit B. A separate map needs to indicate the cull field disposal site(s), acreage available, quantity and types of vegetable waste to be disposed of, soil types present at the site(s), and truck route, if applicable.*



**Response:** The permit being sought is for disposal of waste wash water onto an agricultural field and not the offsite disposal of culls. Nevertheless, a separate discussion on culls is provided in Appendix C. Culls are shown on the process line diagram in Figure 2; cull field location, soil types, and truck hauling routes are shown on Figures 6, 7, and 8.

Page C-II.2, *Appendix V (acres required/site life)* will need to be updated/revised when current data becomes available. Ex. sulfur, salt, carbon/nitrogen balances, etc.

**Response:** Noted; calculations will be updated when data becomes available.

Appendix IV: *I note that the soils monitoring (2011) is lacking. Basically only nitrogen and phosphorous were analyzed for and it was only one sample which does not represent all soil types present (Munden?). No metals or, ex. calcium, ex. sodium, magnesium, etc. were analyzed. Potassium showed non-detect which shouldn't be.*

**Response:** The soil chemistry data provided was all that is available. It is likely that this data is limited due to a misinterpretation of the requirements table (C.II.6) that occurred during the previous permitting process. Knowing that the facility operation is seasonal, the table column denoted "infrequent" was likely considered applicable instead of the column denoted "wastewater". Nevertheless, soil from each major soil series at the spray field was recently sampled and the required data is included herein Appendix B.

Refer to application question C.II.3 item 7 *that requires representative soil samples for each major soil type and for the soil parameters on page C.II.6. Please address the additional soil sampling which is needed to complete the application. It does need to be done up front so that we can assess soils considerations.*

**Response:** Noted; completed. See response above.

Thank you very much for your assistance Bob. I realize that this application is coming late with respect to the upcoming operational season. We have done the best we could to get all the information to you as soon as possible and will continue that way during the permitting process. To the degree that you are able, we respectfully request an expedited review so that the business may operate this season since the crops are currently growing. There is a very short duration (eight weeks) to process the potatoes. Please understand we will provide whatever else you need to help you with your review. Should you have any questions or need additional information, please contact Morgan Evans or me at 757-490-9264.

Sincerely,



Charles H. Hall, P.G., Hydrogeologist  
Director of Environmental Sciences

Copy: Kuzzens

Attachments: Application fee; application package



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# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### TIDEWATER REGIONAL OFFICE

Molly Joseph Ward  
Secretary of Natural Resources

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(757) 518-2000 Fax (757) 518-2009  
[www.deq.virginia.gov](http://www.deq.virginia.gov)

David K. Paylor  
Director  
Maria R. Nold  
Regional Director

March 5, 2014

Mr. Richard L. Davis, Farm Manager  
Kuzzens, Inc.  
3769 Grapeland Circle  
Exmore, Virginia 23550

RE: VPA Application for Mappsville North Packing Plant – Incomplete Application

Dear Mr. Davis:

The referenced application received February 26, 2014 has been reviewed for completeness and accuracy. Upon this review, we find that some additional information, forms, check and corrections are required in order for us to deem your application complete and draft a permit. Please address the following items:

**All forms need to be signed by an executive officer of the company. Please have each of the applicable revised application pages requiring signature reflect a CEO and current signature date.**

**Several missing forms were omitted and are attached for your convenience. They are public notice authorization and annual maintenance fee billing forms.**

**A permit application fee of \$10,500 (VPA industrial wastewater applic <10 inches/yr) Must be sent to our Richmond Office, information attached, with a copy of the check accompanying the revised application.**

**Form A:**

**To be signed by an executive officer of the company . A CEO also needs to sign page C-1.2 (question 3.b.)- Form C.**

Incomplete Application for Kuzzens- Mappsville North  
Page 2

**Form C, Section C-I:**

Page C-I.1. 2a. Identify all potential crops involved (i.e. which vegetables to be washed/packaged). Any other pesticides/herbicides that might be used will also need to be identified on page C.I.7 (waste characterization). **The wash water disinfectant has not been identified. Is it sodium hypochlorite solution?** If so, at what concentration?

Pages C.I.4 through C.I.7- As indicated, data are from 2009. Recent data are required when it becomes available. A special condition will be included in the permit which requires analysis of parameters found in on these pages.

Page C-I.3: A waiver has not been requested for any parameters in section 4.a. for this permit application. Waivers are granted on a case by case basis and are not to be generically assumed. Provide rationale for each parameter requesting to be waived.

Page C-I.4: Sodium should be present in this effluent. Provide data, or indicate that it will be provided when available.

Page C-I.7: Parameters marked unknown concentration will either need to be identified or concentration marked "to be provided". Item 5: "gasing off free chlorine" has not been explained or source identified. A concentration and source for chlorine is also needed here or elsewhere in the application.

**Form C, Section C-II.:**

Page C-II.2, Item#3: Appendix II: A complete description of agronomic practices has not been provided. Please reference the enclosure for direction.

Page C-II.2, Item#3: Appendix II: Please provide a copy of a current, approved nutrient management plan (NMP). If one has not been developed/approved indicate when it will be available. It should show, but not be limited to nutrient management details for tall fescue grasses. We are particularly interested in discussions on sodium and copper residual levels in the field(s). Plan of action for problems (or potential problems) identified. Salts in irrigation water can be detrimental to plant growth if its concentration is too high, preventing water from being easily absorbed by the grass, causing drought-type symptoms. Tall Fescue is only moderately tolerant to salts. The plan should also recommend supplemental fertilizer in the summer to keep grasses healthy and viable, since the irrigation wastewater is generally nutrient poor. The plan will include, but not be limited to a discussion of PAN. The NMP should be approved by a certified nutrient mgt. planner.

**Page C-II.2, Item#4:** Elaborate on the type of spray system used, it's adequacy, problems encountered with it in the past, spare parts available, back up procedures, if necessary, etc.

Incomplete Application for Kuzzens- Mappsville North  
Page 3

**Page C-II.4, Item#10:** If the land application site is entirely owned by the applicant, the authorization to land apply document on page C-II.5 is not applicable. Please explain why it is included.

**Page C-II.2, Exhibit B:** a discussion on culls disposal has been completely omitted, but is indicated here in exhibit B. A separate map needs to indicate the cull field disposal site(s), acreage available, quantity and types of vegetable waste to be disposed of, soil types present at the site(s), and truck route, if applicable.

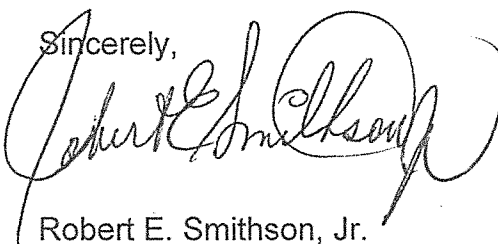
**Page C-II.2, Appendix V (acres required/site life)** will need to be updated/revised when current data becomes available. Ex. sulfur, salt, carbon/nitrogen balances, etc. A special condition will be included in the permit which requires analysis and calculation updates to this section.

**Please be aware that additional technical information *may* be required in order for us to draft your new VPA permit.**

Please make the necessary corrections and/or provide the additional information outlined above by **March 27, 2014, if possible**. Processing of your VPA Permit application will not begin until both our administrative and technical review are complete. Please submit a revised original and one (1) copy to this office (extra copy unnecessary if it can be provided on disc.

If you have any questions, please feel free to give me a call.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert E. Smithson, Jr.", written in a cursive style.

Robert E. Smithson, Jr.  
Environmental Specialist Sr.

cc: DEQ ECM File  
MSA – Charles Hall & Morgan Evans

**Smithson Jr., Robert (DEQ)**

---

**From:** Smithson Jr., Robert (DEQ)  
**Sent:** Thursday, March 06, 2014 3:15 PM  
**To:** 'Charles Hall'; 'Morgan.Evans@msaonline.com'  
**Cc:** 'Richard Davis'; Sauer, Mark (DEQ)  
**Subject:** Kuzzens-Mapps ville North Incomplete Application Correspondence -Addendum To March 5 Letter

**Appendix IV :** I note that the soils monitoring (2011) is lacking. Basically only nitrogen and phosphorous were analyzed for and it was only one sample which does not represent all soil types present (Munden?). No metals or, ex. calcium, ex. sodium, magnesium, etc. were analyzed. Potassium showed non-detect which shouldn't be.

**Refer to application question C.II.3 item 7 that requires representative soil samples for each major soil type and for the soil parameters on page C.II.6. Please address the additional soil sampling which is needed to complete the application. It does need to be done up front so that we can assess soils considerations.**

## ATTACHMENT A

### APPROVED LAND APPLICATION SITES

## ATTACHMENT A

Summary of Currently Approved Land Application Sites for Wastewater

Permittee's Name: KUZZENS, INC ., Mappsville, VA

Owner's Name: Gerard B. O'Dell, Jr., Chief Farming Officer

<u>Site Location</u>	<u>Operator &amp; Owner</u>	<u>Field Designation*</u>	<u>Net Acres</u>	<u>Field Productivity Class for grass hay</u>	<u>percent</u>
Mappsville, Accomack Co., Kuzzen's MappsvilleNorth Property		Wastewater Spray Field	3.39	III Bojac loamy sand Bhb Bojac sandy loam BkA Munden sandy loam MuA Dragston sandy loam DrA	40 50 07 03

The exact location of all sites can be found in the VPA application.

The crop grown on each of the fields is fescue grass which has an annual PAN requirement of 130 lbs/acre.

Summary of Currently Approved Land Application Sites for Cull Disposal

Permittee's Name: KUZZENS, INC ., Mappsville, VA

Land Owner's Name: Steve Van Kesteren (authorized by agreement dated 09/24/14)

<u>Site Location</u>	<u>Operator &amp; Owner</u>	<u>Field Designation*</u>	<u>Net Acres</u>	<u>Field Productivity Class for crops**</u>	<u>percent</u>
Mappsville, Accomack Co.,	Whaples Farm	Cull Application Fields	99	III Bojac loamy sand Bhb I Bojac sandy loam BkA Munden sandy loam MuA Dragston sandy loam DrA	09 68 14 10

The exact location of all sites can be found in the VPA application.

\*\*The crops grown on each of the cull fields (wheat, soybeans & corn) can be found in the NMP.

## ATTACHMENT B

### APPLICATION CHECK LIST



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APPENDIX I-1  
TECHNICAL CHECKLIST REVIEW  
FORM FOR LAND APPLICATION  
INDUSTRIAL WASTE

PROJECT EVALUATION CHECKLIST

Project Name/Locations: KUZZENS - MAPPSVILLE N. PACKING PLANT

Consultant(s)/Specialty: MSA, P.C.

Owner(s): KUZZENS, INC.

Date Received: 2/26/14, 3/25/14, 6/23/14 Date Reviewed: 3/5/14

Reviewer(s): RESmithson

If no, provide comments below that item.

Part A.

☒ Yes No Has the owner fully completed Part A of the application for a VPA Permit?

REVISED & REC. 4/30/14 w/ updated <sup>OWNER</sup> CONTACT/signatures

☒ Yes No Supplied legal name and address?

☒ Yes No Provided name and address of authorized agent?

☒ Yes No Address/location map of the establishment?

☒ Yes No Provided name, title, date, and signature on application?

☒ Yes No Checked description of establishment and provides SIC code?

☒ Yes No Checked appropriate description of facilities?

- ☒ Yes ☐ No Provided a detailed, scaled layout of the establishment showing location of facilities in relation to any potential receiving waters?  
\_\_\_\_\_  
\_\_\_\_\_
- ☒ Yes ☐ No Provided a written description of the operation including unit treatment processes involved, storage facilities, etc.?  
\_\_\_\_\_  
\_\_\_\_\_
- ☒ Yes ☐ No Provided a block diagram illustrating the interrelationships of the described treatment, storage, disposal processes, including flows and/or quantities handled?  
\_\_\_\_\_  
\_\_\_\_\_
- ☒ Yes ☐ No For land treatment systems provided conceptual plans and specifications for transport, conveyance, and application of waste to the land?  
\_\_\_\_\_  
\_\_\_\_\_
- ☒ Yes ☐ No Provided conceptual plans and specifications for all treatment works including scaled plan view of facilities, cross sectional drawings, appropriate elevations of side walls, inside/outside berm side slopes, and details of any proposed liners.  
\_\_\_\_\_  
\_\_\_\_\_
- Yes ☒ No Provided a comprehensive water balance for the treatment works?  
*special condition included requiring submittal when discharge data becomes available*  
\_\_\_\_\_
- Part B.  
☒ Yes ☐ No Have the following items been addressed on Part B of the application?  
\_\_\_\_\_  
\_\_\_\_\_
- Yes ☒ No Has a representative, composite sample been obtained and analyzed for the minimum constituents in Part B?  
*special condition included requiring submittal to complete Part B*  
\_\_\_\_\_
- ☒ Yes ☐ No Has the waste been evaluated and designated by the owner as nonhazardous?  
\_\_\_\_\_  
\_\_\_\_\_

APPENDIX I-1

- ☒ Yes ☐ No For wastewater disposal systems, has monthly precipitation data, and monthly evapotranspiration data been provided and accompanied with pertinent references? (Data pertinent for systems exceeding 0.5 inches per week).
- 
- 
- ☒ Yes ☐ No Selected crop(s)/grasses listed?
- 
- 
- Yes ☒ No Specific crop yields listed for the soils involved (with site specific documentation)?  
*ISSUANCE - info not available*
- 
- 
- Yes ☒ No Planting/harvesting schedules provided to justify non-application periods?  
*N/A* *seasonal operation*
- 
- 
- Yes ☒ No Have design calculations been provided to justify land area requirements for the following constituents accompanied with appropriate reference?
- \* nitrogen
  - \* oxygen demand (TOD)
  - \* oil and grease
  - \* phosphorus
  - \* potassium
  - \* sulfur
  - \* salts (both in balance and concentration)
  - \* anionic/mobile constituents (chlorides, sodium, etc.)
  - \* heavy metals (Cd, Zn, Pb, Ni, Cu, etc.)
- special condition requires submitted when data becomes available*
- 
- 
- ☒ Yes ☐ No For heavy metals, does the land treatment design reflect a predetermined site life within the maximum cumulative constraints published in the land treatment guidelines?
- 
- 
- ☒ Yes ☐ No Does the design ensure that the annual metal loading does not exceed 10 percent of the maximum cumulative loading?
- 
-

☒ Yes No Is a plan for crop disposition provided (eg. used for animal feed, erosion control, etc.)

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Yes No For Sludge application systems, has a complete sludge balance been provided showing the timing and quantity of sludge application in relation to the cropping plan and addition to and draw down from storage?

N/A

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☒ Yes No For waste water systems (exceeding 0.5 in/wk) has an annual water balance been provided including a monthly accounting for precipitation, evapotranspiration, percolation, wastewater loading, and addition to and draw down from storage?

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Part C

☒ Yes No Has the owner completed Part C of the Application for a VPA Permit by including the following information?

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☒ Yes No Submitted a scaled location map of the land treatment area detailing locations of pertinent soil samples, test pits, or hydrogeologic borings and test wells?

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☒ Yes No Indicated the following physiographic features on the above map if within 0.25 mile of the site: water wells (operating or abandoned), surface waters, springs, public water supplies, sinkholes, occupied dwellings, surface impoundments, and landfill(s)?

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☒ Yes No Submitted a topographic map of the site of sufficient detail to clearly indicate slopes, depressions, drainage ways, and portions within the 100 year flood plain, the actual acreage to which waste will be applied, and the following buffers:

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APPENDIX I-1

surface water courses:	50 ft.
water wells	50 ft.
other surface waters (lakes, ponds)	50 ft.
sink holes/rock outcrops	50 ft.

Yes

No

Has total net acreage to which waste will be applied been computed accurately?

Yes

No

Has a soil map been provided (USDA-SCS map if accessible) together with the requested general soil description for each major soil type?

Yes

No

For wastewater systems (where water application exceeds 0.5 in/wk) have shallow soil borings been conducted for each major soil type to confirm the general soil information provided by the USDA-SCS Soil Survey Map including the following characteristics:

Soil horizon identification with respect to texture and color

Depth to rock

Presence of fragipan or other restrictive layer

Depth to gray mottling

Presence of free water

Infiltration rates (testing required)

Subsoil permeability (testing required)

Yes

No

Have statistically representative background soil samples been obtained for each major soil type and analyzed for the following minimum constituents: soil pH, CEC, available phosphorus, exchangeable potassium?

APPENDIX I-1

☒ Yes ☐ No Have background soil samples been obtained and analyzed for those constituents deemed to, be of regulatory concern by the staff (heavy metals, exchangeable sodium percentage, other pertinent constituents)?

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Yes ☒ No Has a ground water monitoring plan been submitted which provides the technical justification for up gradient and down gradient monitoring wells including:

Impact of perched or seasonal high water tables on well screen range and depth

Direction of localized ground water flow patterns evaluated

Assurance that both up gradient and down gradient wells are within the same geologic formation

Specifications for monitoring well construction provided including proposed screen elevations, materials used, size of pipe, grouting and provisions for security (well cap).

*Permit condition requires plan submitted 90 days after insurance they will use previous owner GWM plan*

☒ Yes ☐ No Does the proposed operation adequately address additional site monitoring, if needed?

plant tissue testing/yield

soil testing

surface water testing

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## ATTACHMENT C

### ESTIMATED YIELDS & RECOMMENDED PAN RATES

# ATTACHMENT C

Estimated Yields and Recommended Plant Available Nitrogen (PAN)  
Rates for Various Non-irrigated Crops Used in Sludge Management Systems

Productivity Class	1		2		3		4	
	Yield	PAN lbs/A	Yield	PAN lbs/A	Yield	PAN lbs/A	Yield	PAN lbs/A
<u>Crop</u>								
Corn-Grain	160 bu/A	180	140 bu/A	160	110 bu/A	130	80 bu/A	100
Silage	24 T/A		20 T/A		15 T/A		11 T/A	
Grain sorghum	60 cwt/A	150	50 cwt/A	125	35 cwt/A	100	30 cwt/A	75
Wheat	70 bu/A	100	70 bu/A	100	70 bu/A	100	50 bu/A	75
Barley	90 bu/A	100	90 bu/A	100	90 bu/A	100	70 bu/A	80
Rye	50 bu/A	70	50 bu/A	70	50 bu/A	70	40 bu/A	50
Oats	80 bu/A	80	80 bu/A	80	80 bu/A	80	60 bu/A	60
Fescue or Orchardgrass Pasture**	*	150	*	150	*	<u>130</u>	*	110
Bermudagrass Pasture	*	200	*	200	*	200	--	--
Unimproved Pasture**	*	100	*	100	*	80	*	60
Fescue or Orchardgrass Hay**	4 T/A	200	4 T/A	200	3 T/A	150	2.5 T/A	125
Bermudagrass Hay**	6 T/A	350	6 T/A	350	6 T/A	350	--	--
Alfalfa***	5 T/A	300	5 T/A	300	3.5 T/A	210	2.5 T/A	150
Soybeans Full Season	55 bu/A	275	45 bu/A	225	35 bu/A	175	25 bu/A	125
Double Crop	40 bu/A	200	35 bu/A	175	25 bu/A	125	20 bu/A	100

\* No yield estimates given for pastures, PAN rates are for optimum grass production to support given number of animal units.

\*\* If legumes, such as clover or alfalfa, are present, they may be replaced by grasses at this nitrogen application rate.

\*\*\* At high nitrogen rates, the life of the stand may be shortened and encroachment by grasses may occur. Regardless of productivity class, alfalfa is not well suited to wet soils, even with artificial drainage.

--Indicates this crop not usually grown on soils in this productivity class.



## ATTACHMENT D

### REPORTING FORMS

ATTACHMENT C-1a  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
Virginia Pollution Abatement Monitoring Report

Facility Name: Kuzzens Incorporated-Mappsville North Packing Plant  
Address: 3769 Grapeland Circle  
Exmore, VA 23350

VPA Permit No.: VPA01082

Report Period: From \_\_\_\_ / \_\_\_\_ / \_\_\_\_ To \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Monitoring Station: **Spray Irrigation Wastewater From Storage Tank**

Parameters	Units		Monitoring Results		Analysis Frequency	Sample Type
			Average	Maximum		
Flow	MGD	Reported				
		Required	NL	NL	1/Day	Measured
Total Vol. Applied	MG	Reported				
		Required	*****	NL	Monthly	Calculated
Application Rate	in/hr.	Reported				
		Required	*****	0.25	1/Application	Measured
Application Rate	in/day	Reported				
		Required	*****	1.0	1/App. Day	Measured
Application Rate	in/wk.	Reported				
		Required	*****	2.0	1/Week	Measured
PH	S.U.	Reported				
		Required	6.0 min	9.0	2/Month	Grab
Chlorides	mg/l	Reported				
		Required	NL	NL	2/Month	Grab
TDS	mg/l	Reported				
		Required	NL	NL	2/Month	Grab
TKN	mg/l	Reported				
		Required	NL	NL	2/Month	Grab
TKN	#/acre	Reported				
		Required	NL	NL	2/Month	Calculated
Nitrate-Nitrogen	mg/l	Reported				
		Required	NL	NL	2/Month	Grab
Nitrate-Nitrogen	#/acre	Reported				
		Required	NL	NL	2/Month	Calculated
Ammonia-Nitrogen	mg/l	Reported				
		Required	NL	NL	2/Month	Grab
Ammonia-Nitrogen	#/acre	Reported				
		Required	NL	NL	2/Month	Calculated
Available Phosphorus	mg/l	Reported				
		Required	NL	NL	2/Month	Grab

Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. §1001 and 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)

Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C-1b  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
Virginia Pollution Abatement Monitoring Report

Facility Name: Kuzzens Incorporated-Mappsville North Packing Plant  
Address: 3769 Grapeland Circle  
Exmore, VA 23350

VPA Permit No.: VPA01082

Report Period: From \_\_\_\_ / \_\_\_\_ / \_\_\_\_ To \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Monitoring Station: **Spray Irrigation Wastewater From Storage Tank**

Parameters	Units		Monitoring Results		Frequency of Analysis	Sample Type
			Average	Maximum		
Available Phosphorus	#/acre	Reported				
		Required	NL	NL	2/Month	Calculated
Available Potassium	mg/l	Reported				
		Required	NL	NL	2/Month	Grab
Available Potassium	#/acre	Reported				
		Required	NL	NL	2/Month	Calculated
Dissolved Copper	ug/l	Reported				
		Required	NL	NL	2/Month	Grab
Dissolved Zinc	ug/l	Reported				
		Required	NL	NL	2/Month	Grab
PAN	#/acre	Reported				
		Required	NA	Attch C*	1/Month	Calculated
PAN	#/acre /year	Reported				
		Required	NA	Attch C*	1/Year	Calculated
Pesticide Scan (608)	ug/l	Reported	Attach pages	Attach pages		
		Required	NA	NL	1/year	Grab

Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. §1001 and 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)

Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C-2  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
Virginia Pollution Abatement Monitoring Report

Facility Name: Kuzzens Incorporated-Mappsville North Packing Plant  
Address: 3769 Grapeland Circle  
Exmore, VA 23350

VPA Permit No.: VPA01082

Report Period: From \_\_\_\_ / \_\_\_\_ / \_\_\_\_ To \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Monitoring Station: **Ground Water Monitoring - Well No.**

Parameters	Units		Monitoring Results		Frequency of Analysis	Sample Type
			Average	Maximum		
Static Water Level	0.01 ft	Reported				
		Required	*****	NL	1/year	Measured
pH	Std units	Reported				
		Required	*****	NL	1/year	Grab
Nitrate-Nitrogen	mg/l	Reported				
		Required	*****	NL	1/year	Grab
Total Dissolved Solids (TDS)	mg/l	Reported				
		Required	*****	NL	1/year	Grab
Chlorides	mg/l	Reported				
		Required	*****	NL	1/year	Grab
Total Organic Carbon (TOC)	mg/l	Reported				
		Required	*****	NL	1/year	Grab
Total Recoverable Copper	ug/l	Reported				
		Required	*****	NL	1/year	Grab
Total Recoverable Zinc	ug/l	Reported				
		Required	*****	NL	1/year	Grab
Pesticide Scan (608)	ug/l	Reported	Attach pages	Attach pages		
		Required	*****	NL	1/4 years	Grab

Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. §1001 and 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)

Signature of Principal Officer or Authorized Agent / Date

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ATTACHMENT C-3  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
Virginia Pollution Abatement Monitoring Report

Facility Name: Kuzzens Incorporated-Mappsville North Packing Plant  
Address: 3769 Grapeland Circle  
Exmore, VA 23350

VPA Permit No.: VPA01082

Report Period: From \_\_\_\_ / \_\_\_\_ / \_\_\_\_ To \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Monitoring Station: Soils Monitoring -Land Application Site (>10 core comp.)

Parameters	Units		Monitoring Results		Frequency of Analysis	Sample Type
			Average	Maximum		
Soil pH	SU	Reported				
		Required	NL(min)	6.5	1/Year	Composite
Available Phosphorus	mg/kg	Reported				
		Required	*****	NL	1/Year	Composite
Exchangeable Potassium	mg/kg	Reported				
		Required	*****	NL	1/Year	Composite
Total Nitrogen	mg/kg	Reported				
		Required	*****	NL	1/Year	Composite

Name of Principal Exec. Officer or Authorized Agent \_\_\_\_\_ / \_\_\_\_\_ Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. §1001 and 33 U.S.C. §1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)

Signature of Principal Officer or Authorized Agent \_\_\_\_\_ / \_\_\_\_\_ Date